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British Society for the History of Pharmacy
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British Society for the History of Pharmacy

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The British Society for the History of Pharmacy was formed in 1967 under the aegis of the Pharmaceutical Society of Great Britain, having originated from its History of Pharmacy Committee.
BSHP seeks to act as a focus for the development of all areas of the history of Pharmacy, from the works of the ancient apothecary to today's ever changing role of the community, hospital, wholesale or industrial pharmacist.

Aims

Promotion of historical studies related to pharmacy.
Advancement of knowledge and propagation of understanding of the history of pharmacy.
Publication of the research work of pharmaceutical historians.
Preservation of pharmaceutical artefacts and historic pharmacies.
Support for the work of relevant museums and offering advice on establishment of other pharma-ceutical exhibits and on the preservation of pharmacies.
Co-operation with related professions and local historians on medico-pharmaceutical topics of mutual interest.

Pharmaceutical Historian

The *Pharmaceutical Historian* has been published since 1967, at first intermittently, but on a regular quarterly basis from 1972. Issues generally comprise 16 pages and cover.
An index for the years 1967-1995 was published in 1998. An index for 1996-2000 was published in 2000 and for 2001-2005 in December 2005.
Papers, short communications and letters in English on any aspect of the history of pharmacy are welcome and should be sent to the address above or by email to *bshpeditor@associationhq.org.uk*
Any illustrations are converted to monochrome for printing. Further details of requirements can be found on the website *www.bshp.org* under Publications.

Membership

Membership costs £20.00 per annum and includes:

Four issues of the *Pharmaceutical Historian*.

Regular meetings, with guest speakers, usually in November, February and May.

Visits to places of historic interest, museums, collections, botanical gardens, etc.

Annual Conference, usually in March/April.

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Diary

Friday 27 to Sunday 29 March 2009
BSHP Annual Spring Conference 2009 at the Castle Inn Hotel, Bassenthwaite, Cumbria
Saturday 4 April 2009
Henry VIII Medicine Man: Museum day of events to celebrate Henry VIII's interest in medicine 10.30-16.30. Lambeth . No booking needed.
Wednesday 6 May 2009
'Medicine and Pharmacy: a Twentieth-Century Postcard History' by Dr John Crellin. Lambeth 6.30
Wednesday 23 September 2009
'Disaster Medicine' by Major General Alan Hawley. Lambeth 6.30
Wednesday 4 November 2009
'Nature's Alchemist: John Parkinson, herbalist to Charles I' by Anna Parkinson. Lambeth 6.30
Society of Apothecaries meetings
For further details and booking *see* www.apothecaries.org
Tuesday 28 April 2009
'A time of transition: Thomas Mayleigh, pharmacist or physician?' by Nicholas Wood, Master of Society of Apothecaries 2008-9. Apothecaries Hall 6.00 p.m.
British Society for the History of Medicine 23rd Congress 2 to 5 September 2009 Belfast *http://www.bshm.org.uk/congress.htm*

39th International Congress for the History of Pharmacy
16-19 September 2009, Vienna, Austria
'Remedy and Society'
To be held in the University of Vienna. Further details of registration and hotel booking can be obtained from the BSHP secretary or found on the Congress website. See *www.39ichp.org* for forms.

Obituary
Christine Homan

We regret to announce that BSHP member and pharmacist Chris Homan died in December after several years of illness. Chris regularly attended evening meetings at Lambeth, Annual Spring Conferences and International Conferences, and was well known to members in her role running a bookstall, where she sold discarded pharmaceutical and medical books for the benefit of the Society's funds. She helped Peter behind the scenes in preparing and proof-reading the Society's documents. Christine was born in Poland and escaped through East Germany to Britain before studying pharmacy. We extend our sympathy and appreciation to our Honorary Secretary Peter Homan.

John Stone

John Stone, who died in January, attended nearly every meeting of BSHP and always took photographs. He sent them to the editor, who was grateful for having a source of good photos to publish in the Pharmaceutical Historian.

Bill Jackson's research files available

Last summer Audrey Jackson very kindly donated Bill's files to the Royal Pharmaceutical Society's Museum. They consist of a number of envelope files containing copies of relevant articles, photocopies of original source material, leaflets, handwritten notes, and illustrations. The files cover a wide range of topics from 'toads and frogs in medicine' and 'electrical therapy or electrical trickery' to 'spas' and 'bloodletting in Manchester in the 19th century'.

Any BSHP member interested in accessing the files should contact Briony Hudson, Keeper of the Museum Collections (briony.hudson@rpsgb.org) or 020 7572 2211, who would be happy to supply a full list of topics covered, provide further information, or to arrange for the files to be made available.

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Green Eye Cosmetics of Antiquity

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The usage of cosmetics has a long, and often contentious, history. As long as vanity has existed, and as long as humans have been attracted to brightly coloured/iridescent materials, then cosmetics will have been used. Perhaps originally such materials were used as tribal markers or to denote status within the tribe, then for personal adornment and so progressing into magical/religious/medicinal usage.

Egypt

Green eye cosmetics were probably the first such cosmetics to be used by humans in antiquity.[1] Suitable material was readily available as surface deposits of green copper ores (e.g. malachite and chrysocolla) in prehistoric Egypt, which has the oldest archaeological record of such cosmetics as funerary items. It may have been the first 'sun/fly block' to be used against the fierce sun and persistent flies of ancient Egypt. Also, the colour green would have been associated with the growing of crops and thus be linked to fertility, renewal and new life.

Green coloured eye cosmetics have been found in some of the earliest predynastic[2] excavated sites/tombs of ancient Egypt. It has even been found as a funerary item in an elephant's grave of predynastic date (c. 3600 BC) excavated at Hierakonpolis.[3] Black eye cosmetic (often the lead ore galena) was occasionally found in the predynastic period, but the green version was much more common until the start of the (proto)dynastic period (i.e. from c. 3100 BC), when black begins to predominate in the archaeological record. Green *and* black eye cosmetics were sometimes found together in tombs of the 1st to 10th dynasties (i.e. c. 3100–c. 2025 BC).[4] In Middle and New Kingdom (i.e. 2055 –1650 and 1550–1069 BC[2] respectively) sites/tombs green eye cosmetics occur only occasionally, with the latest dynasty for its occurrence being the 19th (1295–1186 BC[2]).[5] They occurred in linen or leather bags, as well as in (open) shells, segments of reeds, wrapped in leaves and in small stone pots.[6]

It is speculated that green eye cosmetics were, from the New Kingdom onwards, mostly used for ritual purposes. It *may* have been worn by Queen Nefertiti (active 14th century BC) when undertaking her religious duties in Armana.[7] Also, Cleopatra The Great (69–30 BC), and her father Auletes (Ptolemy XII, d. 51 BC), are shown (in the temple's crypts, at Dendera) presenting the goddess Osiris offerings which included 'green eye paint for the right eye and black kohl for the left eye'.[8]

The green eye cosmetics mentioned in the general literature on ancient Egypt, and in the databases/web-sites of some museums, are nearly always stated to be 'malachite'. However, only a fraction of them have been chemically analysed; and even fewer analysed and actually published.[9] Only six such samples from ancient Egypt have so far been chemically characterised (by 'wet chemistry' analytical techniques) and the results published.[5] Five were found to be malachite [a green basic copper carbonate, of formula $CuCO_3.Cu(OH)_2$] and one to be chrysocolla [a green/blue-green copper silicate, one formula of which is $CuSiO_3.2H_2O$]. The samples range in date from predynastic to 19th dynasty, and are all from Upper Egypt (e.g. Dahchour/Dahshur and Gurob).[10] One of the malachite samples was found mixed with resin, which suggests (at least to the original authors) that it may have been a medication rather than a eye cosmetic. However, 'green eye paint' *was* used to treat eye diseases (see later), and so this mixture could have been an early cosmeceutical.

Copper ores occur in the eastern desert (i.e. between the Nile and the Red Sea coast) and Sinai, and are known to have been extensively mined from the (proto)dynastic period.[11] It is assumed that prior to this (i.e. predynastic) the easily accessible surface deposits were found and traded by the Bedu, or were found close to the early settlements.

Mesopotamia and Magan

Apart from those of ancient Egypt, there have been other analyses (using modern spectroscopic analytical techniques) of such samples from the ancient civilisations of Mesopotamia[12] and Magan.[13]

The excavation of the 'Royal Cemetery' of the Sumerian city-state of Ur revealed a wealth of colourful eye cosmetics. The site was dated to c. 2500 BC.[14] Pairs of cockle-shells were found, where one shell was the cosmetic receptacle and the other the lid. The colours found were black/dark brown, purple, red, white and (varying shades of) yellow, green and blue. The most common colours were green and black. A representative group of samples (covering all the colours found) was chosen for chemical analysis.[15] Five green samples were analysed, and it was found that the main component of three was malachite, and atacamite, an emerald green basic copper hydroxy-chloride, of formula $Cu(OH)Cl.Cu(OH)_2$, for the remaining two. One sample was pure malachite and the other two malachite-based samples containing a white diluent – cerussite [lead carbonate, $PbCO_3$] in one sample and hydroxyapatite [calcium hydroxyphosphate, $Ca_5(PO_4)_3(OH)$] in the other sample. Both atacamite-based samples contained hydroxyapatite, as well as some azurite [a *blue* basic copper carbonate, of formula $2CuCO_3.Cu(OH)_2$]. The hydroxyapatite could have had a mineralogical source, but a more probable source is bone ash (i.e. calcined or burnt

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animal bone). Some recent experimental work has shown that to give adhesion of these cosmetics to the skin a small amount of oil or fat must have been present in the original samples.[14]

Additionally, a German article has provided an analysis of a green pigment (assumed to be an eye cosmetic) found in an excavated shell from the Sumerian city-state of Uruk (of undateable context). It was found to be paratacamite (which is chemically, but not crystallographically, identical to atacamite).[16]

Other Sumerian/Akkadian sites (e.g. Cemetery A at Kish, dated to c. 2600–2100 BC) have yielded eye cosmetics as funerary items – with the colours black and green again predominating. These samples have *not* been chemically analysed, and it was assumed that for a particular coloured sample found that its chemical composition matches that of a sample (from Ur) with the same colour that had already been analysed.[17]

To date only one eye cosmetic from Magan has been chemically analysed. It was a green such sample, in an open bivalve shell, from the Tell Abraq site [in modern-day United Arab Emirates (UAE)]. It has been dated to c. 1300–1000 BC. The sample was found to be atacamite.[18]

Thus, overall, only thirteen ancient green eye cosmetics have been chemically analysed and the results published. They cover dates between c. 4000 BC and c. 1000 BC; and a geographical area from the Nile valley of Egypt to the coastal plains of Magan, via the 'Fertile Crescent' of Sumer (Figure 1). Eight (63%) of the samples were based on malachite, three (22%) on atacamite and one each (7.5% each) on chrysocolla and paratacamite. Four of the samples from Sumer (Ur of c. 2500 BC) are known to have had a white diluent (cerussite or hydroxyapatite) present.

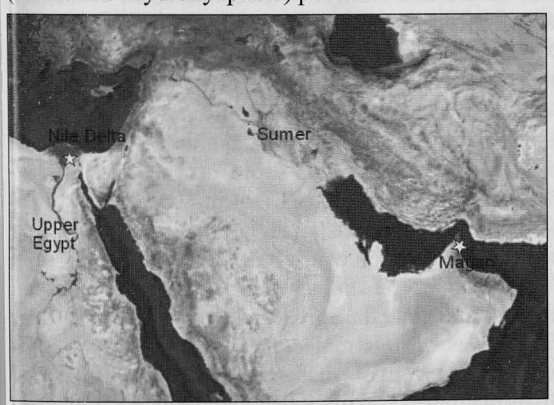

Figure 1.

New samples

We were fortunate to obtain for analysis two well provenanced green eye cosmetics; one from ancient Egypt and one from Magan (the 'stars' in Figure 1). The techniques of LVSEM (Low Vacuum Scanning Electron Microscopy) and XRPD (X-Ray Powder Diffraction) were used on both samples. Additionally, the relatively new technique of QEMSCAN (Quantitative Evaluation of Minerals by Scanning Electron Microscopy) was used on the Magan sample. The first technique (LVSEM) gives quantitative elemental analysis for atomic numbers (Z) of 6 (i.e. carbon) and above. The second technique (XRPD) can provide identification of crystalline compounds and their semi-quantitative percentage presences. The third technique (QEMSCAN) can identify minerals/ inorganic compounds (crystalline *or* amorphous), as well as providing quantitative percentage presences.[19]

Ancient Egyptian sample

This sample was found as a green powder in an 'Alabaster' kohl pot obtained from the excavated site of Tell el-Yehudiyeh (approx. 45 km NE of Memphis, Nile Delta, Lower Egypt[10]).[20] The kohl pot was dated to the 18th dynasty (1550–1295 BC[2]).

The LVSEM results were (in decreasing order of elemental weight percent, with the elements in brackets having values of 1% or less each): C, O, Pb, Cu, Cl (Ca, Al, Si).

The XRPD results were (with approximate percentages in brackets):

Malachite	$CuCO_3.Cu(OH)_2$	(55%)
Cumengeite	$21PbCl_2.20Cu(OH)_2$	(27%)
Atacamite	$Cu(OH)Cl.Cu(OH)_2$	(11%)
Gypsum	$CaSO_4.2H2O$	(7%)

where the gypsum is assumed to have come from the 'Alabaster' kohl pot (though the word 'Alabaster', in this context, *can* mean: gypsum, calcite ($CaCO_3$) or a mixture of the two).

Cumengeite is a rare (indigo-blue) naturally occurring lead-copper secondary mineral that forms in the presence of a high concentration of chloride ions (e.g. immersion in sea water or near-continuous contact with sea salt spray).[21] Similarly, atacamite forms in and is stable in such an environment.[18]

There would appear to be three possible 'routes' for the formation of this sample. It was either:

a) mined (or possibly obtained from associated smelter slag), as the present mixture, in a copper-lead ore deposit close to the sea or

b) mined as a naturally occurring mixture of malachite and cerussite, which was later subjected to an influx of sea water or

c) mined as malachite and some cerussite deliberately added to give a lighter shade of green, and then this man-made mixture was later contaminated with sea water.

This influx of sea water would have given rise to the formation of both cumengeite and atacamite over time. The sea water incursion could have occurred at the sample's source or, more likely, at the prone-to-flooding Nile Delta site of Tell el-Yehudiyeh.

Magan sample

This dark green sample, a lump in an open bivalve shell half, was one of several such samples found in a Late Wadi Suq period tomb at Sharm (present-day northern Fujairah, UAE). The Wadi Suq period is c. 2000–1300 BC; but it is known that this tomb was

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occasionally re-used (and grave-robbed) until c. 300 BC.[22] Thus no exact date has yet been assigned to these excavated bivalve shells. A total of thirteen samples was found: two fragmented halves and eleven whole halves. The two fragmented halves contained green 'pigment', as did nine of the whole halves. Of the two remaining whole halves one was empty and one contained a black 'pigment'.[23] All these 'pigments' were assumed to be eye cosmetic pigments. Our sample was carefully removed, by a museum conservator, from the edge and back of the dark green lump in one of the whole bivalve shell halves (see Figure 2).

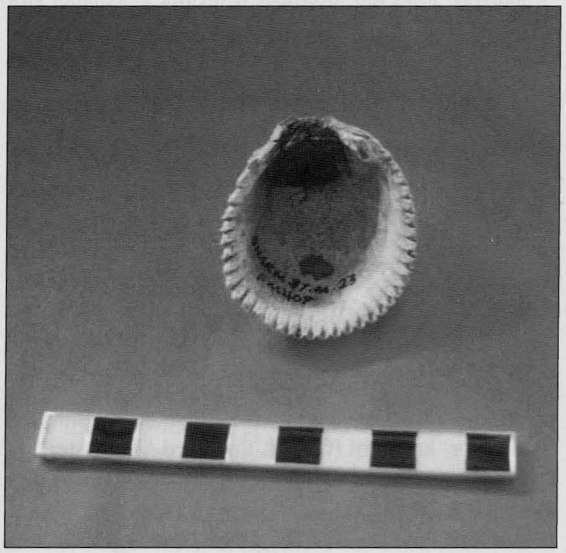

Figure 2.

The LVSEM results were (again, in decreasing order of elemental weight percent and with the elements in brackets being at 1% or less each): Cu, O, C, Si (Mg, Fe, Ca, S).

The XRPD results were (in decreasing order of their estimated presences): one or more (unknown) amorphous compounds; two basic copper sulphates [brochantite–green, $CuSO_4.3Cu(OH)_2$ and antlerite–green, $CuSO_4.2Cu(OH)_2$]; cuprite (black in its massive form, Cu_2O); quartz (white when pure, SiO_2); fayalite (green-black to black, Fe_2SiO_4) and chrysotile [varying shades of green, $Mg_3Si_2O_5(OH)_4$]. No percentages could be calculated from the XRPD data as no reliable value could be found for the percentage of the amorphous content (but its value being at least 50%. Also, the latter could be from several compounds, of unknown ratios to each other. The most likely (copper) amorphous compound is chrysocolla, but other secondary copper compounds/ores can also sometimes occur in the amorphous state. In order to overcome these difficulties we initiated QEMSCAN studies on the sample.

The results were (with both the weight percentages and most likely/assumed minerals given in brackets):

Copper silicates (chrysocolla being the most likely)	(41.9%)
Copper oxides/carbonates/hydroxides (cuprite assumed)	(39.8%)
(Basic) Copper sulphates (brochantite/antlerite)	(5.4%)
Iron oxides/carbonates	(5.3%)
Olivine group of minerals (fayalite assumed)	(2.1%)
Copper sulphides (covellite and some chalcocite being the most likely)	(2.1%)
Copper-iron sulphides (chalcopyrite/bornite/cubanite)	(1.1%)
Serpentine group of minerals (chrysotile assumed)	(0.8%)
Quartz	(0.4%)
Calcite	(0.2%)
Others (several minerals, each at less than 0.2%)	(0.9%)

As can be seen from the above results, this technique cannot always distinguish between minerals of (very) similar chemistry.[24] However, the advantages of using both the XRPD and QEMSCAN techniques for this sample are clear, the techniques being complementary in the data they provided.

Thus, using all the results on this sample, it can be seen that its two major components (present in approx. equal amounts) are a copper silicate (assumed to be chrysocolla) and a copper oxide/carbonate/hydroxide (assumed to be the oxide cuprite). The former must be present in its expected amorphous form, and the latter at least partly so.

Again, there are several possible 'routes' for the formation of this sample. It was either:

a) found as a naturally occurring mixture (where all its components are found, now, in the region [25]) or

b) some mineralogical degradation has occurred, over the millennia in the tomb, from a probable original sample of mostly chrysocolla and copper/copper-iron sulphides – where the latter oxidised partly to the basic sulphates and mostly to the oxide (cuprite). The soil at Sharm is known to be arid, acidic and sandy – where the main corrosion/oxidation product could be expected to be (copper) oxides.[26, 27]

Discussion and comparisons

Copper compounds have been used for millenia for their real or perceived therapeutic effects. Such uses for malachite can be traced from its *possible* use in Mesopotamia (this assumes that the copper-based 'ni-ip-sa urudu' material listed in their medical texts was in fact malachite) as an eye salve,[18] to its *probable* use in New Kingdom (and most likely earlier) Egypt (again, this assumes that the 'green eye paint' listed in their recipes was *always* malachite), where it was used to treat various eye diseases as well as burns/inflammations.[28] In the early Christian era Pliny the Elder (d. 79 AD) describes the use of 'gold-solder' (usually now thought to be malachite, rather than chrysocolla as previously translated) as an emetic, eye salve and for cleansing wounds.[29] Of the other secondary copper ores found by us and others as major components in green eye cosmetics (i.e. atacamite, chrysocolla, cuprite and paratacamite), only chrysocolla is perhaps mentioned in ancient Egyptian medical texts.[30] Of the minor (copper ore) components found (i.e. antlerite, azurite, brochantite and cumengeite),

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none are currently thought to be present in ancient medical texts.

We now know that at least some copper compounds do have antibacterial medicinal properties (e.g. malachite). However, others are described as being moderately to very toxic, for example copper sulphate. If ingested in sufficiently large amounts (> 10g) it can cause severe poisoning that results in coma/death. Also, whilst copper compounds do not seem to be systemically absorbed though the skin surrounding the eyes, application of such compounds there *can* produce acute local toxic effects such as conjunctivitis, ulceration and allergic contact dermatitis of the skin.[31]

The major component (malachite) of our 18th dynasty sample from Lower Egypt is the same as that found for most (5 of 6, i.e. 83%) of the other analysed green eye cosmetics from ancient Egypt.[5] However, the other copper minerals found in our sample (atacamite and cumengeite) are unexpected. Their presence indicates that sea water/salt spray must have been in the environment of the sample at some point in its past. Of the three possible 'routes' to the formation of this sample, as mentioned earlier, we consider that the most probable 'route' is the pairing of malachite and cerussite (either mineralogically or man-made) and that this mixture then came into contact with sea water in Tell el-Yehudiyeh. One example of a malachite-based eye cosmetic having cerussite present has previously been found, in an older sample from Sumer (Ur of c. 2500 BC).[15] Also, recent analyses of some Egyptian eye paints of the period c. 2000 to c. 1200 BC have shown the presence of various (white) lead compounds. It has been found that at least two of these [phosgenite, $Pb_2Cl_2CO_3$ and laurionite, Pb(OH)Cl] were made by lengthy 'wet chemistry' techniques. They, and other white lead compounds/ores (i.e. anglesite, $PbSO_4$; and cerussite, $PbCO_3$), had been deliberately added to the (black) lead ore galena (PbS), either for their supposed therapeutic effects or to give varying shades of grey for cosmetic usage.[19] Thus, our sample (which is dated to within this time period) *could* have had cerussite deliberately added to mined malachite for similar reasons. The source of the ore(s) which made up this original sample could have been one of several sites in ancient Egypt; copper ore deposits existed both in the eastern desert and in Sinai. The exact provenance of this sample must await results of future (lead/copper) isotopic analysis.

One of the two major components (chrysocolla) of our Magan sample has been found only once before in ancient green eye cosmetics, in (Upper) Egypt.[5] The presence of cuprite, mostly in an amorphous state, indicates to us that the second of the two earlier mentioned 'routes' for the formation of this sample is the most likely to have occurred. That is that significant mineralogical degradation of the original sample (specifically oxidation of copper/copper-iron sulphides present) occurred whilst the sample was in the tomb in an open shell for between approx. two and three millennia.

If our cosmetic sample is assumed to date from when the tomb was built (i.e. c. 1300 BC) then it becomes comparable to the similar sample found at Tell Abraq (dated to c. 1300–1000 BC). Both samples are contained in open bivalve shell halves and have been assumed to be eye cosmetic funerary items (and possibly also previously used by the living).[22, 23] Also, although Tell Abraq and Sharm are on opposite sides of the Hajar Mountains, both sets of inhabitants would have had access to the local copper ores (primarily, now, malachite, chrysocolla and chalcopyrite [25]). The first two of these are secondary copper ores that are often found on the surface, and so would be the first to be utilised. Trade is another possibility, but the exact provenance of this and other Magan eye cosmetic samples will have to await further studies (i.e. both chemical and isotopic analyses). It is currently thought that these samples were used solely for cosmetic purposes – either funerary and/or in the lives of the living.

By the end of the 19th dynasty (1186 BC)[2] of ancient Egypt green eye cosmetics have disappeared from the (funerary) archaeological record. It *may* perhaps have lingered on, used solely for ritual purposes, into early AD.[8] Black eye cosmetic replaced the green version increasingly from the early dynastic period. Perhaps the local/easily mined copper deposits became depleted, or black became more available as more Red sea coast lead mines were exploited, or perhaps it was merely a change in (Pharaonic-driven) fashion. We do not know exactly *why* the change occurred, only that it *did*.

In the local markets (souks) of modern-day Egypt the colour green is a rarity amongst the traditional eye cosmetics (kohls) on display. Such coloured kohls do exist and are generally sold only to tourists, under such exotic trade names as 'Nefertiti' and as 'mementos of ancient Egypt'. They usually consist of a readily available white base material (such as talc or calcite) and a small amount of a modern green dye.[19]

Conclusions

Eye cosmetics help us to 'accentuate the being'. The eyes can be made much more expressive and attractive by highlighting them above, below and to their sides. It could have been sexual allure, seeking divine assistance/protection or as an early form of 'sympathic medicine' that first saw green eye cosmetics being used over five thousand years ago in predynastic Egypt.

Our sample from Tell el-Yehudiyeh is the first green eye cosmetic from Lower Egypt to be analysed, as far as we are aware; and our sample from Magan is the only one to date that has been analysed of those found at the excavated site of Sharm. The former sample *may* have had a white diluent (cerussite) deliberately, rather than mineralogically, added to the original sample (malachite) before it underwent chemical change, to give atacamite and cumengeite, from an influx of sea water. The original sample *could* have had a medicinal

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usage as well as a cosmetic one. The latter sample was most likely given its original green colour by chrysocolla; and its other original components (probably copper/copper-iron sulphides) underwent oxidation whilst in the tomb for over two thousand years to give mostly cuprite. It is thought that this original sample was used only for cosmetic purposes.

Acknowledgements

We would like to thank the staff of Bristol Museum (UK) and of Fujairah Museum (Fujairah city, Fujairah, UAE) for access to their collections and the obtaining of the two samples studied by us; and the staff of the Chemical and Materials Analysis Unit (University of Newcastle, UK) for the experimental LVSEM and XRPD work mentioned in this article. Also, to Sharon Uren of the Camborne School of Mines, for additional comments on the manuscript.

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Endnotes and References

1. For the purposes of this article 'antiquity' is taken to cover the time period from the earliest known 'civilisations' to the end of the BC era.

2. Predynastic ancient Egypt covers c. 3100 to 5500 BC. For other currently accepted ancient Egypt Kingdom/Dynasty dates (which are used in this article), see: Shaw I and Nicholson PT. *British Museum dictionary of ancient Egypt*. London: British Museum Press, 2nd edn, 2008: 350.

3. Friedman R. Excavating Hierakonpolis: Who let the Elephants in? Archaeology's Interactive Dig. *www.archaeology.org/interactive/hierakonpolis/field/elephant1.html* 2003.

4. Brunton G Qau and Badari (I). London: British School of Archaeology in Egypt, 1927: 63, 70.

5. Lucas A and Harris JR. *Ancient Egyptian Materials and Industries*, 4th Edn. New York: Dover Publications, 1962: 80-84; and references therein.

6. Manniche L (author) and Forman W (photographer). *Sacred Luxuries: Fragrance, Aromatherapy and Cosmetics in Ancient Egypt*. London: Opus Publishing, 1999: 135, 136.

7. Fletcher J. *The search for Nefertiti*. London: Hodder and Stoughton, 2004: 290, 291.

8. Fletcher J. *Cleopatra The Great: The Woman Behind the Legend*. London: Hodder and Stoughton, 2008: 166; and references therein.

9. For example, see the database/web-site of the Petrie Museum (London, UK) at: www.petrie.ucl.ac.uk (and www.digitalegypt.ucl.ac.uk).

10. For the purposes of this article Upper Egypt is all the land south of Memphis, and Lower Egypt the land to the north.

11. Lucas A. Copper in Ancient Egypt. *J Egyptian Arch* 1927; 13(3/4): 162-170.

12. The word 'Mesopotamia' covers several ancient civilisations (Sumer, Akkad, Babylonia and Assyria), and the geographical area between the Tigris and Euphrates rivers ('The Fertile Crescent') which is now part of (SE) Iraq.

13. Magan (sometimes: Makkan) covers the geographical area covering the present-day countries of The Sultanate of Oman and all seven Emirates of the United Arab Emirates (UAE).

14. Pointer S. *The Artifice of Beauty*. UK: Sutton Publishing, 2005: 10-16.

15. Bimson M. Cosmetic Pigments from the 'Royal Cemetery' at Ur. *Iraq* 1980; 42: 75-77.

16. Riederer J. Die Untersuchung von Pigmentproben aus Uruk. In *Uruk Kleinfunde III,* by Linderneyer E. and Martin L. Mainz: AUWE, 9, 1993: 303.

17. Moorey PRS. *Ancient Mesopotamian Materials and Industries*. Oxford: Clarendon Press, 1994: 134-139.

18. Thomas R and Potts DT. Atacamite pigment at Tell Abraq in the early Iron Age. *Arab arch epig* 1996; 7: 13-16; and references therein.

19. For more details on all three analytical techniques, and relevant analytical results, see: Hardy AD, Walton RI, Vaishnav R et al. Egyptian Eye Cosmetics ("Kohls"): Past and Present. In: Bradley D and Creagh D (eds). *Physical Techniques in the Study of Art, Archaeology and Cultural Heritage*. Netherlands: Elsevier Publishing, 2006: 173-203; and references therein.

20. For background information and details of the excavation at Tell el-Yehudiyeh, see: Petrie WMF. *Hyksos and Israelite Cities*. London: British School of Archaeology in Egypt, 1906: 1-27.

21. Humphreys A, Thomas JH and Williams PA. The chemical stability of mendipite, diaboleite, chloroxiphite and cumengeite, and their relationships to other secondary lead (II) minerals. *Min Mag* 1980; 43: 901-904.

22. Potts DT. Before the Emirates: an Archaeological and Historical Account of Developments in the Region c. 5000 BC to 676 AD. In: *United Arab Emirates (UAE): A New Perspective*. London: Trident Press, 2001: 28-70. Also, from: www.uaeinteract.com/uaeint_misc/pdf/perspectives/02.pdf

23. Masia K. Pigment shells from Sharm. *Arab arch epig* 2000; 11: 22-23.

24. All analytical techniques have strengths and weaknesses. For the XRPD technique the sample must be: a) crystalline; b) in the current database of previously studied compounds (it currently holds almost 600,000 diffraction patterns); c) present at more than the instrument's resolution limit (i.e. about 1-2% for inorganic compounds); and d) not more than about 5 components in a mixture, as overlapping peaks can make identification difficult. By contrast, for the QEMSCAN technique, the sample: a) can be crystalline or amorphous; b) should not contain compounds of (very) similar chemistry as it can be difficult to distinguish between them (also, it cannot distinguish between polymorphs); and c) will be very difficult or impossible to identify if it contains compounds containing elements of atomic number (Z) of 6 (i.e. carbon) or less.

25. Haddadin M.A. and Zachariah C. *Minerals of Oman*. Sultanate of Oman: Ministry of Petroleum and Minerals, 1987: 16-18.

https://doi.org/10.24355/dbbs.084-201803121401

26. For such corrosion as applied to copper metal/alloy artifacts, see: Weeks L. Metal artifacts from the Sharm tomb (1). *Arab arch epig* 2000; 11: 180-198.
27. The degree of formation of amorphous cuprite would depend on the environmental conditions in the tomb (e.g. air, moisture, pH and any overlaying soil/other artifacts). It would probably have formed over a relatively short timescale; most likely as part of a corrosion/patination degradation process, which is difficult to quantify without knowing the exact conditions in the tomb.
28. Nunn JF. *Ancient Egyptian Medicine*. London: British Museum Press, 1996: 146, 147, 173, 199.
29. Rackham H. *Pliny: Natural History,* vol. IX. London: William Heinemann, 1952: 71.
30. The ancient Egyptians may have distinguished between malachite and chrysocolla. For detailed lexicographical information on ancient Egyptian minerals (including their various 'eye paints') see: Harris JR. *Lexicographical Studies in Ancient Egyptian Minerals*. Berlin: Akademie-Verlag, 1961: 143-145.
31. Mason RW, Jones SD, Elliot GS et al. *Copper and Copper Salts (Poisons Information Monograph G002)*. UK: IPCS INTOX Databank, 1990: 13-17, 20-21.

Bath Spa Waters

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The hot waters of Bath have been famous for more than 2000 years. There is evidence of pre-Roman activities in the baths area, mainly mesolithic (5000 BC) and Iron Age.. The first medical use of the waters was by the legendary Prince Bladud, who is said to have cured his skin disorder by bathing in the muddy steaming swamp where his pigs had been cured of their skin disorders.

The Romans arrived in 43AD, tamed the swamp, captured the hot spring and in their customary fashion created the baths complex in the 60s and 70s AD that is the best preserved in Western Europe. They appropriated the local god Sul and built the temple of Sul Minerva.

The overflow from the source of the hot water

Sul Minerva from the temple pediment

It is thought that the area of the Roman baths was more than 7 acres and could accommodate 1000 bathers. There is evidence that they also drank the mineral waters. After the Romans left in the 5th century the baths and the rest of the town fell into ruin: buildings collapsed or were robbed of stone and ground levels rose. Simple baths were built for healing and run by the adjoining Benedictine monastery (now Bath Abbey). The mediaeval and Tudor King's and Queen's bath were used for bathing as a health cure.[1]

This brought pilgrims seeking healing and later the spa gained a reputation for curing infertility. The Georgian moneyed classes came to Bath for the season. The water was also drunk in the Pump Room as part of the cure. Eventually the waters were superseded in fashion by the bathing in and drinking of sea water in the early 1800s, characterised by new health resorts such as Brighton and Weymouth.

The fashion for public bathing changed and Bath became:

> 'a backwater populated by retired officers who relived their campaigns fortified with memories and regular doses of mineral water'. General/Marshal George Wade [no relation]

But for many years the Bath water was recommended for all manner of diseases, real and imaginary.

This naturally attracted a large number of medical men, surgeons, apothecaries and quacks. After the Rose case the apothecaries of the 18th century started to disdain the shop work, the dispensing and the smelly laboratory work in favour of visiting their patients in their homes and lodgings.[2] The first chemist and druggist to have set up shop seems to have been Robert Carton, a London druggist, in

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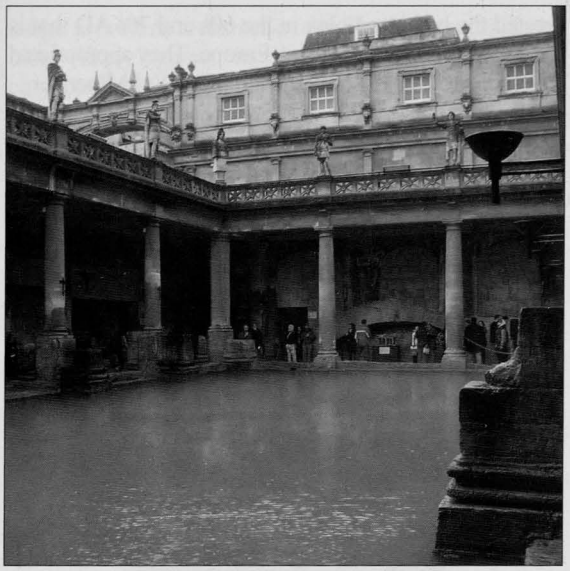

The Roman Baths, restored in late 19th century

1753, and others soon followed. Apothecaries became so powerful in Bath that they formed nearly a quarter of the Bath Corporation and Mayors for much of the 18th century. They were in a powerful position to influence the development of the spa.[3]

Geology and source of the waters

Where does the hot water come from? There are now three hot springs in Bath, each of which supplies a bath:

The Hot Spring (Hetling Spring or old Royal);
The King's Bath Spring; and
The Cross Bath Spring.

In 1901 these 3 springs produced a total volume exceeding 0.5 million gallons per day at 114 to 120°F (more than 2.25 million litres at about 46° Celsius).[4]

There has been speculation about the source of the hot water for centuries. All the other springs used for drinking water around Bath are cold, though some are mineral springs. For many years it has been known that the spa water is not volcanic but comes from deep under the Mendip Hills to the south of Bath and it was often said that the water takes 10,000 years from rain water on the Mendip Hills to hot water in Bath.

William Smith, the father of English geology, worked around Bath and his description of the *order of the strata* played a part in working out the source. More recent geological studies have investigated the related local hot waters around Bath and at Hotwells in Bristol and the source is still thought to be deep under the Mendip Hills.[5]

Knowing that the earth becomes hotter as you go deeper the temperature gradient indicates that the water must have circulated to at least 5000 feet (1524m) to issue at 46°.

Radioisotope studies now indicate a rainwater source flowing under the carboniferous limestone of the Somerset coalfield and making its way through deep faults to Bath under hydrostatic pressure from water in the Mendip Hills. Its age could be from a few hundred to 8000 years.[14]

Chemistry of the waters: minerals, gases and radioactivity

But what's in the water? Early studies of the chemical content of the mineral waters seem rather simplistic and fanciful by today's analytical standards. But think back to the state of chemistry in the 18th-century heyday of the spa. It was readily determined that the waters contained iron and lime from the encrustations, and gases were observed to bubble from the water, especially the Cross Bath.

The Report of *The Lancet* Commission of October 1899 includes data from their laboratory on the mineral residues and gases from the three sources, quaintly expressed in grains per gallon (see Table). In summary, among the 0.2% of minerals there is little more than calcium salts in the water and not even much in the way of sodium or magnesium.[6]

What could the effects, if any, of the constituents be? There was a search for the 'quintessence'. The gases bubbling out in the Cross Bath in 1901 were:[7]

carbon dioxide 2.2 %,
oxygen 1.2 %,
argon and 'helion' 1.61%, and
nitrogen 94.9 %.

(Professor Sir James Dewar was at the time collecting and studying the amounts of the newly discovered inert gases. He concluded that the amount was too small to collect and at a cost of £200 per cubic foot unlikely to make money.)[8]

Table: Analysis of Spa Water, from *Lancet* Report[6]

Minerals %w/v	The Hot Spring	The King's Spring	Cross Bath Spring
Calcium sulphate	0.1211	0.1469	0.1233
Strontium sulphate	0.0027	0.0029	0.0016
Sodium sulphate	0.0227	0.0336	0.0154
Potassium sulphate	0.0003	0.0003	0.0003
Calcium carbonate	0.0125	0.0125	0.0125
Magnesium chloride	0.0224	0.0225	0.0223
Sodium chloride	0.0187	0.0129	0.0188
Lithium chloride	0.0001	0.0002	0.0002
Silica	0.0059	0.0028	0.0029
Bromine	trace	trace	trace
Nitrates	trace	trace	trace
Iron carbonate	0.0015	0.0023	0.0026
Total minerals	0.2079	0.237	0.2002
Temperature °F	118	114	114 (46° C)

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Only small amounts of gases could be dissolved at 46° C. They seem to have arrived in the water by the solution of atmospheric air, then the removal of the oxygen by passage through the rocks. The inert gases come from radioactive breakdown.

However *The Lancet* claimed that the thermal waters exhibited a distinct solvent action on uric acid, especially as the waters were drunk hot.

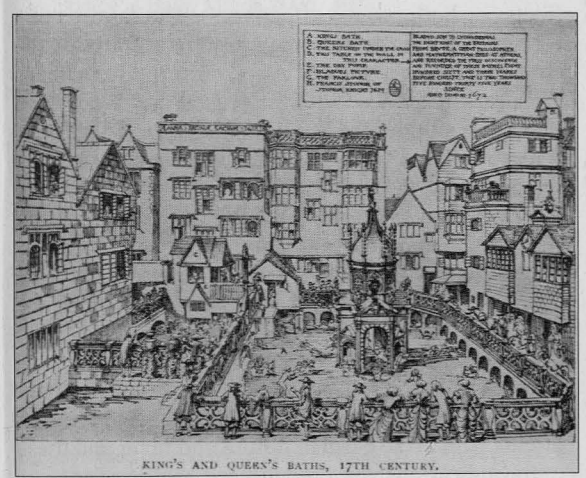
When small amounts of the newly discovered radium or radon were found in the limey residues in 1911 the Council's hopes were raised that this was the missing 'X-Factor' or quintessence[9] responsible for the water's beneficial effects.

If you taste the waters – memorably described by Dickens as 'tasting of warm flat-irons' in *Pickwick Tales* – it's quite safe, as the amounts of radioactivity are minuscule and valueless. Today we know more about the uses and effects of radioactivity. But at the time it made good publicity. The radium story was still being repeated in medical textbooks in the 1930s.

What finally killed the radioactive quintessence idea was the radioactive leak from Windscale/ Sellafield in 1959 and the removal of X-ray machines from shoe-shops. It dawned on the staff of the Spa treatment centre and the guides in the Roman baths, who had been proclaiming the radioactivity of the waters, that they might be exposed to health risks. The Radiological Protection Service were called in and found that actual levels were only one-tenth of those found by Dewar and that there was little likelihood of any harm from bathing in or drinking the waters.[10]

The heyday of the Spa

After the dissolution of the Benedictine Abbey, control of the waters passed to the Bath Corporation. Drinking of the water seems to have started again in 1572 and became part of the cure.



King's and Queen's baths, 17th century

A new Pump Room was built at the end of the 17th century and the real fame of Bath followed the successful treatment of the infertility of Mary of Modena, Queen to James the second in 1688.[11] (Of course there were some doubts about the production of a Catholic heir to the throne.)

18th Century Bathing

In the later 18th century the water was administered to bathers from buckets or pumps while the bather stood in the hottest part of the bath. For example, in cases of lumbago 2000 strokes of the pump were ordered to be applied to the back, then 10 more pumpings of 1000 strokes each to complete the 'cure'. Bathers were carried back to their homes or lodgings wrapped up in towels in sedan chairs. The chair men could be troublesome in assisting their patients home.

By Victorian times the Baths had become more medical and less social, with the building of suites of treatment rooms for various types of hydrotherapy.[12] There was a Grand Pump Room Hotel and hot mineral water was supplied to the hospitals such as the Royal Mineral Water Hospital, locally known as 'the Min' and now the National Hospital for Rheumatic Disease. The main diseases that were claimed to be cured by the waters were palsy, colic and gout.

Although the spa continued into the NHS era with its vastly extended Victorian facilities, it was used mainly for hydrotherapy of rheumatism and stroke. The doctors retained tight control of the facilities and a medical prescription was required to use the treatment facilities.

Gradually the facilities were closed down and the Grand Pump Room Hotel was demolished to make way for British Home Stores, Halfords, Edinburgh Woollen Mill etc. As in Georgian times, shopping therapy is still an important part of the 'cure' in Bath.

Closure of spa 1978

In the 1970s the Roman Baths regained some acclaim from the swimming parties associated with the Bath Festival. The Beau Street swimming baths continued to use the hot water. Then in July 1978 a girl was admitted to the Royal United Hospital (the successor to various older hospitals) apparently suffering from bacterial meningitis. Antibacterials were of no avail, but in a routine cell count of cerebrospinal fluid an alert lab worker noticed amoebae swimming across the cell counting chamber.[13] Amphotericin treatment cleared the CSF but the patient died after 9 days. A search for the source revealed that the child took part in a school swimming gala at the Beau Street Baths and use of the baths and drinking in the Pump Room ceased.

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Investigation showed the amoeba was *Naegleria fowleri*. It is a thermophilic soil and water organism that had caused deaths around the world. Inhalation of warm, contaminated fresh water can lead to penetration of the nasal epithelium and organisms can travel along the olfactory lobes to the brain. It is activated in oxygenated warm water up to 45° C. Though not found at the swimming baths, *Naegleria* was eventually found in a reservoir at the laundry used for washing the towels etc used at the spa. Other species were found later.[13]

The amoeba needs oxygen and so a new deep borehole was sunk to tap and treat the water before it could be oxygenated. This allowed a renewal of the spa to be contemplated and drinking in the Pump Room. The amoeba has been found at hot springs in temperate and tropical climates around the world and is particularly prevalent in New Zealand.

Modern investigations of the 'Cure'

Did the spa cure work and if so, how? The records of the Bath General Hospital, founded 1741, have been researched by Audrey Heywood[15] to review their evidence for cures. The symptoms of lead poisoning are very characteristic and it is possible to see how the claimed overall cure-rate of 45% could have been achieved.

Lead poisoning was common from Roman times until the 20th century, caused by the use of lead water pipes in soft water areas, adulteration of wine and port, lead glazes on earthenware, the lead/tin lining of copper cooking pots and the lead lining of wooden food storage boxes. Cosmetics and many medicines also contained lead salts. For many patients the symptoms would be malaise, tiredness, aching limbs and headaches. More serious cases also had colic and peripheral neuropathies with paralysis.

Lead has also been shown to produce gout in more severe cases, probably by damaging renal tubules and reducing urate excretion. Tradesmen working with lead , such as painters, glaziers, plumbers and potters, risked occupational exposure and a paralysis of the limbs that prevented them working.

The spa was considered so effective that patients were sent to Bath by Poor Law overseers in London and the Southwest. Cure-rates for paralysis of over 90% were shown in those with *occupational* lead exposure, but lower rates of around 20% in other patients, whose paralysis probably resulted from stroke.

The high-protein diets of the wealthy in the 18th century could lead to *gout* regardless of lead poisoning. The poor charity patients at the Bath General Hospital did not suffer from gout until the mid-19th century. Heywood says the *'greedy got gout and the poor got paralysis'*. The hospital records are for the poor working class. There are no accurate records of the treatment of wealthy private patients by physicians for comparison. Patients with gout could not take to the waters during an acute

Bath chairs outside Pump Room

attack, so waited until it subsided. They could return home with some benefit and come again another year. Just as with modern patients, the first sign of improvement in the gout was another acute attack as the serum urate is lowered.

Chronic lead poisoning can also affect *fertility* and Bath had a reputation for treating barrenness (e.g. Mary of Modena who bathed in the Cross Bath).

For those with *rheumatic disorders*, the exercise both in and out of the waters, fresh air, rest, and a moderate diet helped, and the intake of regular draughts of the water may have reduced their alcohol intake.

Physiology of bathing

We have seen that the water contained nothing miraculous, so why did the cure work?

Immersion in water as therapy has featured in nearly every civilisation. A scientific investigation of the effects of immersion of normal subjects in Bath water at 33-39° C compared with tap water in the 1980s showed that the minerals had no significant effects – both were effective.[16] The hydrostatic pressure of immersion to a metre depth to the shoulders forces a greater venous return to the heart. The heart responds with increased heart-rate and output, haemodilution and vasodilatation. The effects increase with temperature to a maximum 121% increase in cardiac output at 39°. This significantly increased the excretion of urine, sodium and potassium during a 2-hour immersion and there was a mean weight loss of 530 grams. These effects were shown to be accompanied by many changes in the renal hormones that control salt and water. So the temperature and depth of immersion are the critical factors and these are not achieved in any ordinary domestic bath. These effects were made worse in patients with acute cardiac failure and fever and these contra-indications were recognised centuries ago.

The future of the Spa

Bath has had to reinvent itself without the Spa in recent years. Its status as a World Heritage Site and tourist centre is as much about the Georgian buildings and the Abbey as about the Roman baths or the Spa. But that was about to change when the new Spa

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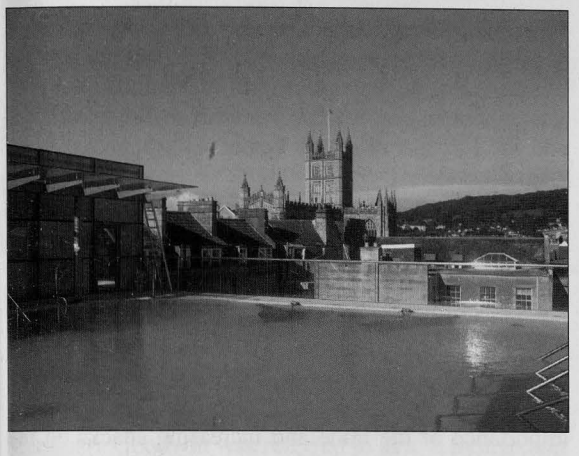

The rooftop pool of the new Spa, 2006

buildings opened later in 2006. Intended as a Millennium project the opening of the new Spa building was hindered by water damage to the tiles and pools. Sadly, in spite of the hopes raised at the time of the Three Tenors Concert in 2003, when the Spa was expected to open any day, it was not opened until August 2006. Whether due to faulty workmanship, faulty design or faulty project management, there were six years of frustrating delays. The outcome of the spiralling costs will be decided by lawsuits, complicated by becoming a political and economic cause celebre.

Finally, a favourite quotation:

> Of all places in the Kingdom, Bath is best fitted for the retirement of individuals with independent incomes, whether small or large. For those past the meridian of life, its quietness, beautiful neighbourhood and warmth of climate particularly recommend it.[17]

This paper was presented at the BSHP Annual Spring Conference at Bath, March 2006.

Acknowledgments

There are hundreds of books, reports and pictures on the history of Bath and its spa over the last 2000 years, only a few of which have been examined for this paper. Modern pictures were provided by Peter Homan, John Stone and the author.

References and endnotes

1. Davenport, Peter. *Medieval Bath Uncovered.* Stroud: Tempus Publishing, 2002.
2. Fawcett, Trevor. *Bath Commercialis'd: Shops, trades and market at the 18th-century spa.* Bath: Ruton, 2002: 1-3.
3. Reference 2: 3.
4. *Medical Guide to the Hot Mineral Baths of Bath.* Bath: Baths Committee of Bath Corporation, 1901. A promotional book published by the City Council to encourage the medical use of the Spa. Largely based on a comprehensive report of *The Lancet* Special Commission on 'Bath as a Health Resort', October 1899.
5. Kellaway, GA (ed.). *Hot Springs of Bath: Investigations of the thermal waters of the Avon Valley.* Bath: Bath City Council, 1991: 13. A valuable collection of papers on the geology, chemistry, history, medical uses and physiological effects of the Bath waters, originally presented at a Symposium at the Royal Society in 1987.
6. Reference 4: 71-73.
7. Reference 4: 76.
8. Reference 5: 65.
9. Reference 5: 57.
10. Reference 5: 70.
11. Reference 5: 78-79.
12. Reference 4: 30-32.
13. Reference 5: 89-91.
14. Reference 5: 168-169
15. Reference 5: 77-88.
16. Reference 5: 71-76.
17. Gibbs, Samuel. *The Bath Visitant; or New Guide to Bath.* Bath, 1839.

Pharmacy and Slavery: Apothecaries, Medicines and the Slave Trade 1650 to 1807

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The recent explosion of interest in the history of slavery has resulted in a large number of academic publications, a growing number of museums of slavery, and the subject being taught in schools. But to date there has been very little interest shown in it by historians of pharmacy. Yet pharmacy in Britain had a close and sometimes uncomfortable relationship with slavery over many years.

This article explores the relationship between pharmacy and Atlantic slavery, from its origins to shortly after the abolition of the trade in 1807. This period of pharmacy's history was dominated by disputes over occupational boundaries, most notably between the apothecaries and the physicians. Traditional medical practice and commercial pharmacy overlapped during this period, as has been demonstrated in a number of studies, including Burnby's study of the apothecary between 1660 and 1760,[1] and Haycock and Wallis's book on the business of Anthony Daffy.[2]

Pharmaceutical aspects of the slave trade included supplying not only the slave ships with medicines, but also the forts and settlements on the African coast where the slaves were embarked, and the plantations in America and the Caribbean where they worked. Individual apothecaries and druggists often went out to work on the plantations, and a few even became plantation owners. And in later years, some prominent Quaker apothecaries played a part in bringing about the abolition of the trade.

The origins of the slave trade

The origin of Britain's involvement in the Atlantic slave trade is normally traced to the middle of the sixteenth century.[3] William Towerson became the first Englishman to trade in slaves during his first voyage in 1555. Six years later John Hawkins began his piratical incursions into the trade through his voyages to West Africa and the

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Caribbean. Crucially, he had royal support for his activities, becoming dubbed 'Queen Elizabeth's slave trader'.[4]

It was the explosive growth in the demand for sugar that occurred in the middle of the seventeenth century that drove the demand for slave labour. Sugar cane was introduced to Barbados in the mid-1640s by Dutch merchants and planters who had been expelled from Brazil.[5] The island became a Crown colony in 1663. By 1680 the crop had transformed the island into 'the richest colony in English America'. Sugar cultivation spread rapidly to other Caribbean islands including the Leeward Islands and Martinique, reaching Jamaica and St Domingue in the early eighteenth century.

Sugar was not the only commodity that thrived in the Americas and the Caribbean. By 1620 Virginia had begun to produce tobacco for export, and this became the major export of both this colony and its neighbour Maryland over the next 150 years. There was a gold boom in Brazil between 1680 and 1750, followed much later by a coffee boom, and cotton, cocoa and rice, amongst other crops, became significant exports from the West Indies between 1660 and 1850. Cotton became the major export of the southern United States from around 1790.

All these activities were extremely labour intensive. The plantation owners found it impossible to recruit sufficient numbers of either the local indigenous population or white immigrants who were willing to do the work. The only way of meeting the demand was through slavery.

The Role of the Royal African Company

At the time of the Restoration, in 1660, Charles II granted a charter to a group of English merchants, the Company of the Royal Adventurers to Africa. The object of the company was to supply the English sugar colonies with 3,000 slaves a year at an average price of £17, or the value of one ton of sugar per slave.

More than half of the original 32 beneficiaries of the Charter were either peers or members of the Royal family. But by 1667 there were 49 untitled shareholders, most of whom were merchants in the city of London.[6] Fifteen of the Lord Mayors of London were shareholders, as were several Members of Parliament (MPs). None of these early investors were known to be apothecaries, although two of the Masters of the Society of Apothecaries (James St Amand and James Chase) were MPs.

In 1672 the Company became the Royal African Company, with the king himself as a shareholder. Under its Charter it held a monopoly in English trade to Africa between 1672 and 1698. After 1698 private merchants entered the slave trade, and as a result shipments of slaves in English vessels rose dramatically. They averaged more than 20,000 a year through most of the eighteenth century, reaching 30 to 45,000 a year during the last decade. Almost 11,000 ships were fitted out in England between 1698 and 1807, transporting around three million Africans into slavery.[7]

By the late seventeenth century the triangular nature of the trade was well established. Ships left England for Africa laden with goods to be traded for slaves; the slaves were transported to America or the Caribbean; and the ships returned to England laden with cotton, tobacco and other commodities grown on the plantations. Between 1672 and 1713 more than 500 ships were sent out from England by the Royal African Company with goods worth £1.5 million. During its most active period, between 1680 and 1688, departures totalled 249, or around 40 a year.[8]

As the trade expanded the economic centre for it was London, although the focus of slave trading shifted first to Bristol and then to Liverpool. The growing importance of the trade and increasing attacks on the ships led to the need for increased protection from the Navy. Shipping was then a major part of the English economy; ships had to be built, manned, repaired and refitted between voyages. Work was provided for large numbers of artisans, seamen and others involved in supplying the ships. There were clearly considerable opportunities for the apothecaries of the day.

The Medicines Contract with the Royal African Company

The ships involved spent considerable time in hostile places with a range of exotic diseases to contend with. Many of the larger ones carried a surgeon, although the plight of both the crews and their cargos seem to have varied considerably. Some of the surgeons later recorded their experiences; Alexander Falconbridge wrote in 1788 that conditions for the slaves varied 'in different ships, according to the attention paid to the health and convenience of the slaves by the captain'.[9]

The average cost of putting a slave ship to sea in the mid-eighteenth century was about £4,000, with two thirds of this accounted for by trade goods.[10] As the size of the ships and the price of slaves in Africa rose, so did the cost of fitting them out. By the end of the century it had reached £10-12,000.[11] These figures included the cost of supplying the medicine chests. It could cost between £80 and £90 to fit out one chest. Large numbers of surgeons were employed on ships. Some 500 people qualified as naval surgeons at Barber-surgeon's Hall each year.[12]

The Royal African Company awarded the much-prized contract for the supply of medicines to individual apothecaries, rather than to the Society of Apothecaries, which had opened its manufacturing laboratory in 1671.[13] In the early eighteenth century the Company had contracts with two London apothecaries, Matthews of the Poultry and Markham of Paternoster Row, both of whom were members of the Society of Apothecaries. These two had apparently obtained the contract on the recommendation of a physician, Dr Levit, who was a powerful figure in the College of Physicians.

Medicine chests were needed not just for the ships. In addition the Company built a total of seventeen settlements in Africa, which were designated as either

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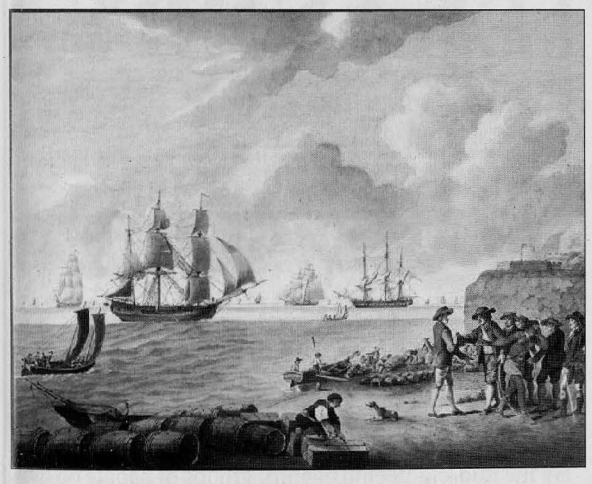
'forts' or 'factories'.[14] However, only two (those of Accra and Cape Coast) were continuously occupied between 1672 and 1713. Seven were ranked as forts, designed to be permanent settlements and garrisoned by between 8 and 20 men.[15] Factories were unfortified settlements. Each of the Company's forts usually had access to a medicine chest.

Challenge to the Royal African Company's Contract

The contract to supply medicines to the Royal African Company was very lucrative, and other apothecaries eyed it with envy. In 1721 James Goodwin made an audacious attempt to wrest it from Matthews and Markham. Goodwin was referred to as a 'Chymist and Apothecary at the end of the Hay Market'[16] although he was not a member of the Society of Apothecaries. He had a well-established and extensive business, both wholesale and retail, with contracts to supply drugs to a wide range of both individuals and organisations.[17]

Goodwin made his bid for the contract against the background of the dispute between the physicians and the apothecaries. Not surprisingly, he managed to gain the enmity not only of the College of Physicians, but also that of the Society of Apothecaries, since he was an unincorporated apothecary. After Goodwin approached the Company Matthews and Markham approached Dr



'Slave trafficing 1711', by S. Hutchinson (National Maritime Museum)

Levit again to see if he would 'assist them in opposing this inroad on their privilege'.[18] Levit took up the challenge with glee, and Goodwin's bid was defeated. The contract remained firmly in the hands of Matthews and Markham until the Company was wound up in 1750.[19]

Pharmacy and the ships of the West Indies Fleet

The booming trade with the West Indies was protected by an ever increasing naval fleet. In December 1702 the Earl of Peterborough was appointed Governor of Jamaica and Admiral of the Fleet in the West Indies. His physician, Sir Thomas Millington, who was President of the Royal College of Physicians, proposed that the College's Dispensary should supply the expedition with drugs. The Society of Apothecaries complained to the Secretary of State, claiming that its members had always been employed by the Fleet, and contracted to supply its medicines.

In the event the Earl of Peterborough's commission was cancelled, but James St Amand, Master of the Apothecaries, and Charles Bernard, Master of the Barber-Surgeons, used their influence with the Queen. The Master reported to the Court in February 1703 that the Queen intended that, in future, the Society of Apothecaries should have the exclusive right to serve the Fleet with medicines and drugs.[20]

In future all naval surgeons' chests were to be prepared at Apothecaries Hall, who set up a separate company, the Navy Stock, to supply them. Unlike the contracts with the slave ships, which were open to individual apothecaries, medicines supplied to the Navy were thus the preserve of the Society. The Society appears to have shown no interest in the contract with the Royal African Company.

Challenge to the Society of Apothecaries' Monopoly to Supply the Navy

The contract with the navy was also lucrative, and in 1756 the business of the Navy Stock was challenged by an apothecary called William Cookworthy. Cookworthy succeeded in obtaining the contract for the hospital ship *Rupert* at Plymouth, much to the annoyance of the Society of Apothecaries.[21] The Master and Wardens complained to the Admiralty that the Commissioners of the Sick and Wounded Board had agreed that the ship would be supplied by Cookworthy, and reminded them that the Society had been given the monopoly by Queen Anne.[22]

The Commissioners found that medicines as good as those supplied by the Society of Apothecaries could be obtained more cheaply at Plymouth, and Cookworthy became the Navy's main source of medical supplies. He continued to supply the navy for over twenty years. By 1778 the value of the contract had reached £700 a year.[23] The medicines in the navy ships, as well as those of the Royal African Company, were thus supplied by individual apothecaries rather than the Society of Apothecaries.

Apothecaries working on the Plantations

The expanding American colonies offered promising prospects to apothecaries prepared to move. Several members of the Society of Apothecaries sought the blessing of the Court before setting off. In 1736 Henry Williamson was granted a certificate by the Society recommending him to the trustees of the Colony of Georgia as a suitable person to manage the medicine chest.[24] Ten years later, in 1746, William Shirley requested a diploma under the Society's seal as evidence that he had been examined by them, prior to settling in Virginia. Another apothecary, Samuel Danforth, later emigrated to Boston and worked as an inoculator.[25]

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Not all of those who went out to work in the colonies stayed. It was not uncommon for physicians, surgeons, apothecaries and druggists to gain experience overseas for a year or two before returning. One such was John Mudge of Plymouth; he trained as a surgeon and apothecary and practised in England for a while before obtaining further medical training. He then spent a short period in Jamaica before returning to Truro, where he practised as a physician until 1780, when he moved to London.[26]

Supplying Medicines to the Plantations

By the mid eighteenth century trade links were well established between apothecaries and druggists in England and the increasing numbers of physicians, apothecaries and plantation owners across America and the Caribbean. One eighteenth century druggist involved in this trade was William Jones.

Jones practised in Little Russell Street, London, between 1746 and 1756, but in 1757 he bought a chemist's business near Drury Lane, after which he described himself as 'William Jones, Druggist and Chymist at the Red Cross in Russell Street.' His activities extended well beyond London, and embraced not only retail and wholesale pharmacy but also banking. He traded with the East India Company, and with agents in many parts of the world, including Tobago and Jamaica.[27]

Apothecaries, Quakers and Slavery

In the eighteenth century a number of significant apothecaries were Quakers. For Quakers, any involvement with the slave trade was strictly forbidden. But for many managing the conflict between business and conscience was sometimes difficult. So it was for Joseph Gurney Bevan, whose family ran the Plough Court business in London.

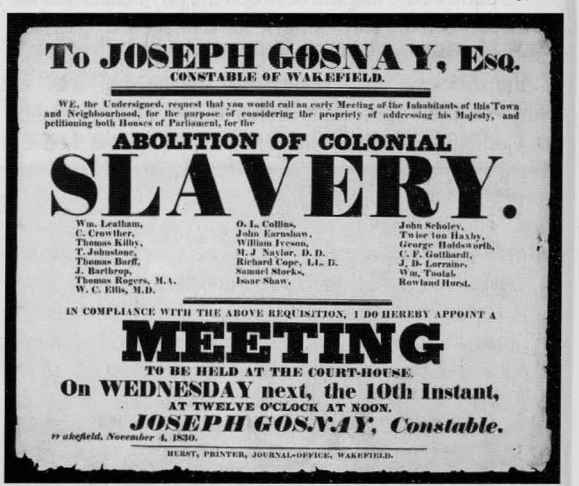
Bevan's letters contain frequent references to his abhorrence of what he called 'the man-trade'. But a large part of his father Silvanus's business had been the transatlantic trade, and in that it was difficult to avoid all association with slavery. Bevan himself refused any kind of security that involved a mortgage on slaves. On one occasion a Jamaican correspondent offered to meet his debt by selling slaves; Bevan quickly replied that he would prefer to wait longer for his money 'than to be the means of obliging thee to sell thy negroes.'[28]

The firm nevertheless continued its substantial trade links with both America and the West Indies. Bevan's concerns about the West Indian trade seem to have been more about the difficulty of getting paid than the morality of slavery.[29] On taking over the business he was soon writing to claim outstanding debts. He normally expected payment in bills of exchange drawn on a house in England, or in the form of merchandisable produce from the West Indies such as ginger, rum or sugar.[30]

The medical arrangements necessary to keep the plantations functioning at all efficiently were extensive. Most employed both surgeons and apothecaries, who vaccinated the slaves against smallpox, performed surgical interventions, treated intestinal and respiratory ailments, and saved lives.[31] Most of Bevan's customers were medical practitioners, apothecaries, surgeons and physicians, although he also despatched medicines to wholesale druggists.

There were rich pickings on offer to London firms prepared to take the risks.[32] One such was another Quaker apothecary, Thomas Corbyn. By the 1750s Corbyn was already trading with large numbers of dealers not only in Virginia, Maryland, Pennsylvania, Connecticut, Rhode Island and other states in America, but also many in the Caribbean. These included Robert James in Antigua, Cadwallader Evans in Jamaica and Dr Joseph Gamble in Barbados. Large quantities of drugs were made up, packed into chests or casks, insured, and sent down to Bristol to await shipment.[33]

A small number of members of the Society of Apothecaries are known to have owned plantations in the West Indies. One such was Thomas Mayleigh, who was also a Quaker. His family records and account books for the period from the late seventeenth century to about 1732 are held in the archives of the Society.[34]



To JOSEPH GOSNAY, Esq.
CONSTABLE OF WAKEFIELD.

WE, the Undersigned, request that you would call an early Meeting of the Inhabitants of this Town and Neighbourhood, for the purpose of considering the propriety of addressing his Majesty, and petitioning both Houses of Parliament, for the

ABOLITION OF COLONIAL
SLAVERY.

Wm. Leatham, C. Crowther, Thomas Kilby, T. Johnstone, Thomas Barff, J. Barthrop, Thomas Rogers, M.A. W. C. Ellis, M.D.
O. L. Collins, John Earnshaw, William Iveson, M. J. Naylor, D. D. Richard Cope, LL. D. Samuel Storks, Isaac Shaw,
John Scholey, Twice ton Haxby, George Holdsworth, C. F. Gotthardt, J. D. Lorraine, Wm. Tootal, Rowland Hurst.

IN COMPLIANCE WITH THE ABOVE REQUISITION, I DO HEREBY APPOINT A

MEETING

TO BE HELD AT THE COURT-HOUSE,
On WEDNESDAY next, the 10th Instant,
AT TWELVE O'CLOCK AT NOON.
JOSEPH GOSNAY, Constable.

Wakefield, November 4, 1830.

HURST, PRINTER, JOURNAL-OFFICE, WAKEFIELD.

Abolition of Slavery poster 1830 (National Maritime Museum)

The movement to abolish the slave trade

By the mid-eighteenth century groups of people on both sides of the Atlantic were expressing concerns about the morality and justice of slavery. The movement to abolish the slave trade was led by Quakers, especially American Quakers in Philadelphia.[35] Early histories of the Plough Court pharmacy have emphasised the high-minded principles of its early Quaker proprietors, including Bevan, Allen and Howard.[36][37] All were in fact active in campaigning against the slave trade.[38]

In Britain, the campaign took off in 1786 when a young graduate called Thomas Clarkson won a prize for an Essay on Slavery. The essay came to the attention of a new Yorkshire Member of Parliament and rising political star, William Wilberforce. Both Clarkson and Wilberforce were to have strong associations with apothecaries of the time. A number of initiatives began

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to be taken to improve the lot of the slave.[39] Amongst these was Dolben's Act of 1788, which restricted the number of Africans that could be carried on British slave ships, and also stipulated that all slave ships should carry a doctor.[40]

William Allen was, like Bevan, a Quaker involved in the foundation of Allen and Hanburys. Like Bevan, Allen abhorred the slave trade and was committed to its abolition.[41] Thomas Clarkson became his friend in 1794, and he was on intimate terms with both Clarkson and William Wilberforce throughout his life. Allen also had a close association with the foundation of a colony for emancipated slaves in Sierra Leone.[42] On occasions he even sent medicines there.[43]

William Wilberforce was a Member of Parliament from 1784 to 1812, although he never had a ministerial appointment. In 1785, the year before he read Clarkson's Essay on Slavery, he had had a conversion experience, as a result of which he became an evangelical Christian. Wilberforce had many supporters amongst apothecaries. John Mason Good went so far as to dedicate his 'History of Medicine so far as it relates to the profession of the apothecary' to him in 1795.[44]

After Abolition of the Slave Trade in 1807

With passage of the Act to abolish the slave trade in 1807 the apothecaries' contracts to supply the slave ships with medicines ended. Some apothecaries changed their business practices relating to plantations still using slaves. Bevan at Plough Court, for example, had decided by 1807 that accounts would only be opened there if solid security could be found.[45] By 1811 letters of apology to American and West Indian customers for refusing to open accounts had become common.[46]

On the abolition of the slave trade William Allen became an active member of the African Institution, which was formed to foster new trading links with Africa to replace the old slave trade.[47] He also continued to agitate for the world-wide abolition of slavery.[48]

So ended pharmacy's long association with the slave trade. For apothecaries and druggists the commercial opportunities were little different to any others. They were no more concerned with the rights and wrongs of slavery than most of their contemporaries. And for the majority of ordinary apothecaries, trying to make a living outside of the main ports, the slave trade largely passed them by.

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References and Endnotes

1. Burnby JGL. *A Study of the English Apothecary from 1660 to 1760,* Medical History Supplement No. 3, London: Wellcome Institute for the History of Medicine, 1983: 9.
2. Haycock DB and Wallis P (eds). *Quackery and Commerce in Seventeenth Century London: the Proprietary Medicine Business of Anthony Daffy,* Medical History Supplement No. 25, London: Wellcome Trust Centre for the History of Medicine at UCL, 2005.
3. Walvin J. *A Short History of Slavery,* London: Penguin Books, 2007: 50.
4. Reference 3: 42.
5. Richardson D. Liverpool and the English Slave Trade. In Tibbles A (ed.) *Transatlantic Slavery: Against Human Dignity.* Liverpool: Liverpool University Press, 1994: 19.
6. Davies KG. *The Royal African Company,* London: Taylor and Francis, 1999: 64.
7. Reference 5: 67.
8. Reference 6: 191.
9. Falconbridge Alexander. *Account of the Slave Trade on the Coast of Africa,* London, 1788.
10. Richardson D. Profits in the Liverpool Slave Trade: the Accounts of William Davenport 1757-1784. In Anstey R and Hair PEH (eds). *Liverpool, the African Slave Trade and Abolition,* Liverpool: Liverpool University Press, 1976.
11. Anstey R. *The Atlantic Slave Trade and Abolition 1760-1810,* London: Macmillan, 1975.
12. Hunting P. *A History of the Society of Apothecaries,* London: Society of Apothecaries, 1998: 170.
13. Hunt JA. Manufacture at Apothecaries Hall. *Pharmaceutical Journal,* 1996; 257: 906.
14. Reference 6: 245.
15. Reference 6: 246.
16. Reference 1: 46.
17. Wall C, Cameron HC and Underwood EA. *A History of the Worshipful Society of Apothecaries of London,* Oxford: Oxford University Press, 1963.
18. Bell J and Redwood T. *Historical Sketch of the Progress of Pharmacy in Great Britain,* London: Pharmaceutical Society of Great Britain, 1880: 21.
19. Reference 6: 296.
20. Reference 12: 167.
21. Reference 12: 172
22. Selleck AD. *Cookworthy (1705-1780) and his Circle,* Plymouth: Baron Jay, 1978: 36.
23. Reference 12: 172.
24. Reference 12: 180.
25. Burnby JGL. An Examined and Free Apothecary. In Nutton V and Porter R (eds). *The History of Medical Education in Britain,* 1995: 16-37.
26. Madge AGM. Cookworthy: Chemist and Potter. *Pharmaceutical Historian* 1993; 23: 2, 4.
27. Trease GE. *Pharmacy in History*, London: Bailliere, Tindall and Cox, 1964: 159.
28. Tweedale G. *At the Sign of the Plough: Allen and Hanburys and the British Pharmaceutical Industry 1715 to 1990,* London: John Murray, 1990: 30.
29. Reference 28: 23.
30. Reference 28: 24.
31. Sheridan RB. *Doctors and Slaves: A Medical and Demographic History of Slavery in the British West Indies 1680-1834,* Cambridge: Cambridge University Press, 1985.
32. Porter R and Porter D. The Rise of the English Drugs Industry: The Role of Thomas Corbyn. In Liebenau J, Higby GJ and Stroud EC (eds). *Pill Peddlers: Essays on the History of the Pharmaceutical Industry,* Madison, Wisconsin: American Institute of the History of Pharmacy, 1990: 21.
33. Reference 32: 19.
34. Cook D. Archivist to Society of Apothecaries, personal communication, 12 December 2008.
35. Reference 3: 147.

https://doi.org/10.24355/dbbs.084-201803121401

36. Cripps EC. *Plough Court: The Story of a Notable Pharmacy,* London: Allen and Hanbury, 1927.
37. Chapman-Huston D and Cripps EC. *Through a City Archway: The Story of Allen and Hanbury 1715-1954,* London: John Murray, 1954.
38. Reference 32: 13.
39. Reference 3: 150.
40. Reference 3: 154.
41. Reference 28: 39.
42. Reference 28: 44.
43. Reference 28: 45.
44. Good John Mason. *The History of Medicine so far as it relates to the Profession of the Apothecary,* London: C Dilly in the Poultry, 1795: i-ii.
45. Reference 28: 36.
46. Reference 28: 37.
47. Ackerson W. *The African Institution (1807-1827) and the Anti-slavery Movement in Great Britain,* London: Edwin Mellen Press, 2005.
48. Reference 28: 39.

Review

Views and Reviews. Prof. Harkishan Singh

Bangalore, India: Association of Pharmaceutical Teachers of India, 2008, pp. 628 (hardback price £25.00).

This is a compilation of selected writings by Harkishan Singh, professor emeritus at Punjab University, who is perhaps best known in Britain for his writings on the history of pharmacy in India. The book contains a total of 101 pieces of varying subject and length.

The material is arranged chronologically in order of original date of publication, with the earliest dating from 1954, and the most recent being 2007. However, the emphasis is on his more recent writings, with only five pieces dating from the 1950s and six from the 1960s, but a total of forty four published since 2000.

The subject matter is extremely varied, and it would perhaps have been more helpful to group related material together. The three largest categories relate to pharmacy education, to the history of pharmacy, and to the lives of influential pharmacists in India, many of whom were colleagues of Professor Singh. There are also a number of autobiographical pieces, and others present the personal views of Professor Singh on a wide range of pharmaceutical issues. Some of the pieces are no longer than half a page in length.

Other themes covered in this collection relate to Professor Singh's own area of expertise, that of medicinal chemistry. His research group developed a neuromuscular blocking agent, chandonium iodide, which goes under the International Non-proprietary Name candocuronium. Not surprisingly some of these papers contain copious chemical formulae, and these papers account for some of the longer pieces.

The commentaries and reviews also relate to pharmacy research, pharmacy law, and the pharmaceutical industry. He includes two of his presidential addresses, to the Indian Pharmacy Graduates' Association in 1978, and to the Indian Pharmaceutical Congress in 1981. These provide a valuable account of the state of pharmacy education and practice in India at the time, and of the hopes for the future of pharmacy in that country.

All of the material that appears in this collection has been published previously, but usually in Indian publications which researchers outside India find difficult to access. However, some of it has been brought together previously, most notably in Singh's five volumes of 'History of Pharmacy in India and Related Aspects.' This series of books includes the history of pharmacopoeias and formularies in India, pharmaceutical education in India, the history of pharmacy practice in India, and two biographical volumes covering those who he describes as builders and awareness creators of modern pharmacy in India.

Extracts from these books have appeared separately elsewhere. Indeed, some four pieces from the current collection are reproduced from *Pharmaceutical Historian,* including his accounts of the 'overseas drug trade in colonial India', 'apothecaries and hospital assistants in colonial India', and 'western medical system in colonial India'. Singh's account of the history of rural pharmacy in India first appeared in the *Eastern Pharmacist* in 2001, but subsequently appeared as a chapter in his book on pharmacy practice.

Nevertheless there are some historical papers in the collection that have not previously appeared outside India. Amongst these is 'the first pharma journal' in which we learn that the *Indian Journal of Pharmacy* (Calcutta) began publication in January 1894, but continued only until November 1896. A journal with the same name began appearing from Benares in 1939, and in 1968 the *Pharmaceutical Times* was published as a supplement to it. A year later the *Indian Journal of Pharmacy* became an exclusively scientific journal, with articles of a more professional nature appearing in another new journal, *Pharma Times.* In 1979 the *Indian Journal of Pharmacy* became the *Indian Journal of Pharmaceutical Sciences.*

For the reader outside of India the most useful aspect of this compilation is in making more readily available articles and papers originally published in journals such as the *Indian Journal of Pharmaceutical Education*, the *Indian Journal of Hospital Pharmacy*, as well as the *Indian Journal of Pharmacy* and *Pharma Times.* Other extracts are taken from less well known publications such as *Pharmakon* and *Pharmacos.*

This is therefore a highly eclectic anthology. Collectively it provides a window into the life and times of a leading figure in pharmacy in India during the second half of the twentieth century; for few other Indian pharmacists have committed quite so much to the written word as Harkishan Singh.

Singh has made an important contribution to the history of pharmacy in India, both through his own historical research work and through his other writings, over a period of more than fifty years. This collection is a fitting tribute to his energy and hard work.

Stuart Anderson

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List of Museums with Pharmacy Collections

This list of pharmacy museums was created in 1993 and has been provided by the RPSGB Museum.

Any reader who can provide further information is asked to send details to Briony Hudson, Keeper of the Museum Collections on 020 7572 2211 or briony.hudson@rpsgb.org

Please note that the provision of the details of these museums is for information only, and does not imply a recommendation by the Museum of the Royal Pharmaceutical Society.

Each museum is listed with a brief description of the relevant part of their collections. This information is mainly taken from Sue Weir's publication *Medical Museums in Britain* (Royal Society of Medicine: London, 1993).

Where a museum's details includes the term 'Registered', this refers to the minimum standards scheme run by the Museums, Libraries and Archives Council. Registered museums are required to meet certain standards in relation to their standards of collections care, management, visitor services, etc.

England

Cleveland

Kirkleatham Museum, Kirkleatham, Redcar, Cleveland TS10 5NW, Tel: 01642 479500
museum_services@redcar-cleveland.gov.uk
www.redcar-cleveland.gov.uk/museums
Registered. Collection of pharmacy equipment dating from the late 1800s and early 1900s, from Fairbanks and Franks a Guisborough chemist.

Cornwall

Flambards Victorian Village, Culdrose Manor, Helston, Cornwall TR13 0QA, Tel: 01326 573404
Info@flambards.co.uk www.flambards.co.uk
Victorian pharmacy recreated - 'unique chemist's shop time capsule'.

County Durham

Beamish, The North of England Open Air Museum, Beamish DH9 0RG, Tel: 0191 370 4000
www.beamish.org.uk

Cumbria

Museum of Lakeland Life, Kendal, Cumbria LA9 5AL
Tel: 01539 722464
Info@lakelandmuseum.org.uk
www.lakelandmuseum.org.uk
Registered. Reconstructed late 1800s pharmacy.

Devon

The Park Pharmacy, The Merchant's House Museum, Plymouth
www.plymouth.gov.uk/homepage/creativityandculture/museums/museummerchantshouse.htm
jan@knightscientific.com
Reconstructed 1864 pharmacy. Owned by the Park Pharmacy Trust Contact: Dr Jan Knight 01752 565676

Torquay Museum, 529 Babbacombe Road, Torquay, Devon TQ1 1HG, Tel: 01803 293975
www.torquaymuseum.org
Registered. Collections include a glass percolator, plaster iron, cachet machine, leech holders, silver spatula, pill making machine, glass bottles & jars. Agatha Christie's birthplace (she was once a dispensing assistant).
NB The reconstructed pharmacy formerly at *Cookworthy Museum* has been dismantled.

Dorset

Waterfront Museum, 4 High Street, Poole, Dorset BH15 1BW, Tel: 01202 262600
www.boroughofpoole./museums
Registered . Cartledge's Pharmacy from 1879

Essex

Saffron Walden Museum, Museum Street, Saffron Walden, Essex CB10 1JL, Tel: 01799 510333
Registered. Dutch drug jars on display, contents of a chemist's shop available by request.

Hampshire

Winchester City Museum, The Square, Winchester, Hampshire SO23 9EX, Tel: 01962 848269
Registered. Richard Hunt's pharmacy: a unique collection of pharmaceutical furnishings from 1700s to1900s. Early delftware jars & green painted dry drug drawers. Mahogany counter panels, undecorated 1800s drawers & glass doors leading to a preparation room, pill making equipment, prescription & recipe books.

London

Old Operating Theatre, Museum and Herb Garret, 9A St Thomas' Street, London SE1 9RY, Tel: 020 7955 4791
www.thegarret.org.uk
Operating theatre dating from before the use of anaesthetics. Medical history of St Thomas' Hospital, Guy's Hospital and Evelina Children's Hospital from the 1100s to the late 1800s.

Museum of London, London Wall, London EC2Y 5HN
Tel: 020 7600 3699
museum@museumoflondon.org.uk
www.museumoflondon.org.uk
Registered. Mock-up pharmacy from the 1800s

Science Museum, Exhibition Road, London SW7 2DD
Tel: 020 7942 4000
www.sciencemuseum.org.uk
Collections cover scientific, technological and medical change since the 1700s. Though rich in British material, they result from worldwide acquisition.

Wandsworth Museum, 38 West Hill, Wandsworth, SW18 1KZ contact@wandsworthmuseum.co.uk
Fixtures and fittings, shop rounds and equipment, primarily from local pharmacies

Norfolk

Bridewell Museum, Bridewell Alley, St Andrew's Street, Norwich, Norfolk NR2 1AQ, Tel: 01603 629127
Registered. Early 1900s pharmacy, including mahogany drug run, glass jars & bottles, eye testing charts, baby weighing scales.

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Shropshire

Blists Hill Victorian Town , Legges Way, Madeley Telford TF7 5DU, Tel: 01952 884 391 www.ironbridge.org.uk/our_attractions/blists_hill_victorian_town/ Reconstructed pharmacy shop as part of the Victorian town

Somerset

North Somerset Museum, Burlington Street, Weston-Super-Mare, North Somerset BS23 1PR, Tel: 01934 621028
Museum.service@n-somerset.gov.uk
www.n-somerset.gov.uk/museum
Registered. Pharmacy items come mainly from one shop that closed in the 1960s

Staffordshire

Shugborough Hall, Milford, Near Stafford, Staffs ST17 0XB, Tel: 01889 881388
www.staffordshire.gov.uk/shugborough
Registered. Working display illustrates techniques used by pharmacist and has fittings from a nearby shop.

Teesside

Stockton on Tees, Preston Hall Museum, Yarm Road, Stockton on Tees TS18 3RN, Tel: 01642 781184
PrestonHall@stockton.gov.uk
Full reconstructed pharmacy with contents.

West Midlands

Black Country Living Museum, Tipton Road, Dudley West Midlands DY1 4SQ, Tel: 0121 557 9643
www.bclm.co.uk
Registered

Wiltshire

Bradford on Avon Museum, Bridge Street, Bradford on Avon, Wiltshire BA15 1BY Tel: 01225 863280
www.bradfordonavon.co.uk/museum.htm
Registered. Pharmacy. Influences include: eastern inspired perfumes + beauty preparations, curry powder. Mahogany counter, shelves, cabinets, dispensary & drug run, glass bottles carboys and some lab glassware. Also pharmacy equipment

Yorkshire

Beck Isle Museum of Rural Life, Pickering, North Yorkshire YO18 8DU, Tel: 01751 473653
www.beckislemuseum.co.uk
Registered. Pharmacy jars, jars of magical cures and recipe books.

Ryedale Folk Museum, Hutton le Hole, York YO62 6UA, Tel: 01751 417367
www.ryedalefolkmuseum.co.uk
Reconstructed pharmacy

Thackray Museum, Beckett Street, Leeds LS9 7LN Tel: 0113 244 4343
www.thackraymuseum.org
Registered. Over 60,000 objects, books and trade catalogues relating to the history of surgery, medicine and health care.

Thirsk Museum, 14/16 Kirkgate, Thirsk, North Yorkshire YO7 1PQ, Tel: 01845 527707
Thirskmuseum@btinternet.com
www.thirskmuseum.org
Run by volunteers. Cashier machine, pill machine, powder folder, pestle & mortar, named bottles.

York Castle Museum, The Eye of York, York YO1 9RY Tel: 01904 687687 www.yorkcastlemuseum.org.uk

Scotland

People's Palace Museum, Glasgow Green, Glasgow G40 1AT Tel: 0141 276 0788
www.glasgowmuseums.com
Registered. Scottish early 1900s pharmacy, coloured glass bottles, tins, pots, jars of proprietary & patent medicines, nasal douche, carbolic spray, enema syringes, magnet electro machine, blood circulator, urine testing box, pill rolling & suppository making equip. Hospital pharmaceutical cabinet from Forresthall Hospital.

Aberdeen Maritime Museum, Shiprow, Aberdeen AB11 5BY Tel. 01224 337719
www.aberdeencity.gov.uk
Registered. Entire shop fittings, registers and records from Davidson & Kay, Aberdeen 1800s-1980s.

Wales

Llechwedd Slate Caverns, Blaenau Ffestiniog, Gwynedd LL41 3NB, Tel: 01766 830306
www.llechwedd-slate-caverns.co.uk
Pharmacy in store of Lloyd Jones.

The National Botanic Garden of Wales, Llanarthne, Carmarthenshire SA32 8HG, Tel: 01558 668768
info@gardenofwales.org.uk
www.gardenofwales.org.uk
The 'Physicians of Myddfai' exhibition centres around a reconstructed Victorian pharmacy complete with contents.

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British Society for the History of Pharmacy
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British Society for the History of Pharmacy

840 Melton Road, Thurmaston, Leicester, LE4 8BN
Tel: 0116 264 0083, Fax: 0116 264 0141, Email: bshp@associactionenterprises.com

The British Society for the History of Pharmacy was formed in 1967 under the aegis of the Pharmaceutical Society of Great Britain, having originated from its History of Pharmacy Committee.
BSHP seeks to act as a focus for the development of all areas of the history of Pharmacy, from the works of the ancient apothecary to today's ever changing role of the community, hospital, wholesale or industrial pharmacist.

Aims

Promotion of historical studies related to pharmacy.
Advancement of knowledge and propagation of understanding of the history of pharmacy.
Publication of the research work of pharmaceutical historians.
Preservation of pharmaceutical artefacts and historic pharmacies.
Support for the work of relevant museums and offering advice on establishment of other pharma-ceutical exhibits and on the preservation of pharmacies.
Co-operation with related professions and local historians on medico-pharmaceutical topics of mutual interest.

Pharmaceutical Historian

The *Pharmaceutical Historian* has been published since 1967, at first intermittently, but on a regular quarterly basis from 1972. Issues generally comprise 16 pages and cover.
An index for the years 1967-1995 was published in 1998. An index for 1996-2000 was published in 2000 and for 2001-2005 in December 2005.
Papers, short communications and letters in English on any aspect of the history of pharmacy are welcome and should be sent to the address above or by email to *bshpeditor@associationhq.org.uk*
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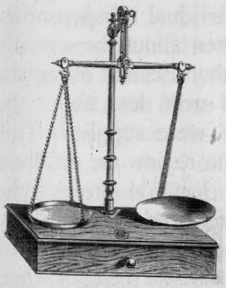

PHARMACEUTICAL HISTORIAN

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Diary

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'Disaster Medicine' by Major General Alan Hawley. Lambeth 6.30
Wednesday 4 November 2009
'Nature's Alchemist: John Parkinson, herbalist to Charles I' by Anna Parkinson. Lambeth 6.30

British Society for the History of Medicine 23rd Congress 2 to 5 September 2009 Belfast
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Review

Blue Ships: Dutch Ocean Crossing with Multifunctional Drugs and Spices in the Eighteenth Century

A M G Rutten (translation by J Wormer)
Rotterdam: Erasmus Publishing, 2008, pp. 155 (hardback price £30.00); ISBN 9789052351995.

The movement of medicines between continents, between the Old World and the New, has been a subject of interest to pharmaceutical historians for some time. Indeed, the theme of the 38th International Congress for the History of Pharmacy, held in Seville in 2007, was 'Drugs and medicines from both sides of the Atlantic Ocean.'

Fons Rutten's book represents a significant and worthwhile contribution to our knowledge in this important area. His subject is the transport of medicines and other commodities between the Dutch East and West Indies and Holland during the eighteenth century. The theme of the book is that many of these commodities had several uses, only one of which was medicinal. He describes such commodities as multifunctional drugs.

The 'Blue Ships' of the title refers to those that were used primarily for the transport of indigo, which was transported across the Atlantic in vast quantities. The indigo dust coloured the sides of the ships blue. Indigo was used primarily as a vegetable dye for textiles, but it was also used as a drug, in the treatment of epilepsy and skin diseases.

Rutten tells the story of the movement of these commodities within the context of exploration and the development of sea trade; adventurers travelled far beyond local shores to the far reaches of the Atlantic and Indian Oceans; and great institutions to support and promote such enterprise emerged. These included the Dutch East Indies (VOC) and the Dutch West Indies (WIC) Companies. This new era of exploration followed the discovery of an ocean route to India by the Portuguese explorer Vasco de Gama in 1497.

Rutten's book tells a fascinating and entertaining story, demonstrating the often reckless willingness of people to test the potential of every new commodity for multiple uses and maximum commercial advantage. Although it is essentially a book on the history of

Continued on p.32

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The Dispensary Movement, Apothecaries and the Supply of Medicines 1696 to 1949

Dr Stuart Anderson
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Introduction

In many towns and cities across Great Britain it is still possible to come across old buildings with the word 'dispensary' carved into the stonework. It is not unreasonable for the casual observer to suppose that such places were ones where medicines were once made and supplied to the public, and hence a place where apothecaries, chemists and druggists, and later pharmacists, might be found.

In the eighteenth and nineteenth centuries, and indeed into the twentieth century, the word 'dispensary' had a rather different meaning to that attached to it today. Dispensaries were places where medical care was dispensed free of charge to those who could not afford to pay for the services of a physician or surgeon, or even the prices charged by the apothecary. They usually operated as outpatient clinics where people could get treatment which did not involve admission overnight; patients would often queue for hours for a brief (often less than two minutes) consultation with a physician, surgeon or apothecary.

Dispensaries began in London but they sprang up all around the country; they have a long and varied history. Some existed for only short periods of time, disappearing with hardly a trace; others grew and evolved, whilst others underwent transformations which led eventually to the foundation of great hospitals. There were many different types of dispensary; they varied according to their purpose, their location and their sources of funding.

In recent years there has been a growing interest in the history of the dispensary movement. An early account of medical dispensaries in eighteenth century London was given by William Hartston in 1963;[1] Sir Zachary Cope described the movement in 1964 in a chapter in *The Evolution of Hospitals in Britain*.[2] More recently Irvine Loudon explored the origins and growth of the dispensary movement in England in 1981,[3] and Lindsay Granshaw gives a brief account of the movement in *The History of the Hospital,* which she edited with Roy Porter in 1989.[4]

A great deal of the recent interest has focussed on the dispensary movement in London. MJ Chamard wrote a book on its development during the period from 1867 to 1911, which was published in 1984 by the University of Toronto.[5] Bronwyn Croxson described the public and private faces of eighteenth-century London dispensary charity in a paper in 1997;[6] and John Griffin published a history of the dispensary movement in London from 1675 to 1948 in 2000.[7]

But despite this substantial literature on the origins and funding arrangements of the dispensary movement, and accounts of many individual dispensaries, surprisingly little has been written about the specific roles of apothecaries, and later chemists and druggists, in relation to dispensaries, and even less about the medicines used and how these were supplied. This article therefore has three aims; to review the different types of dispensary and their location around the country; to identify the different roles played by apothecaries in the foundation and operation of dispensaries; and to describe some of the medicines and pharmaceutical services provided by them.

The origin of dispensaries

The first dispensaries were opened in London by the College of Physicians at the end of the seventeenth century. They were a response by the physicians to competition from the apothecaries. At that time few patients could afford to pay the fees of physicians, and most turned to apothecaries who only charged for the medicine supplied. But some apothecaries began to trespass on the territory of the physicians, and in an attempt to stop this the College of Physicians opened a dispensary at the College in Warwick Lane in 1696.[8] This was followed by two others (one in Gracechurch Street and a third near St Martin's Lane) a year later. All were places where physicians would give free advice to anyone who chose to consult them.

The physicians initially asked the apothecaries to help make up the medicines at reduced prices, but the apothecaries refused, so the physicians engaged unqualified dispensers to dispense the medicines at reduced rates. However, this attempt to control the activities of the apothecaries was not very successful, and all three dispensaries were closed in 1725. This was a period of bitter hostility between the College of Physicians and the Society of Apothecaries; soon after the College of Physicians' initiative the Society of Apothecaries founded their own dispensary in Bishopsgate in 1702.[9]

The Apothecaries appointed a Mr Underwood 'whose father and grandfather had been apothecaries' as apothecary at Bishopsgate. Patients were seen on a daily basis, and those that were too ill to attend were visited in their own homes. Unlike those of the College of Physicians, the Apothecaries Dispensary was very successful, and it was soon followed by the foundation of similar institutions in other parts of London and Westminster.

From 1700 to 1750 the population of England remained fairly stable, but between 1750 and 1800 it increased rapidly, with a great increase in overcrowding, poverty and sickness. Although a number of new hospitals appeared in London there was never enough room for all those who needed medical attention. Initially these hospitals had no regular out-patient departments. There was clearly scope for a place where the poor could go for advice and medicine without having to pay; and it was during this period that the number of chemists and druggists also increased greatly.[10]

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Perhaps not surprisingly, the College of Physicians decided to try again, despite the failure of their early dispensary initiative, and despite the Rose case in 1704 having allowed apothecaries to practice medicine so long as they only charged for the medicine itself. The initiative was taken by a young Scottish doctor called George Armstrong, who opened a small dispensary for children in Red Lion Square in 1769.

This was followed a year later by the foundation of the first general medical dispensary in Aldersgate Street, in 1770. This was largely the initiative of an ambitious and clever physician by the name of John Coakley Lettsom. The Aldersgate Street Dispensary was located close to both St Bartholomew's Hospital and the Royal College of Physicians. It flourished, and it became the Farringdon General Dispensary and Lying-In Charity in 1828.

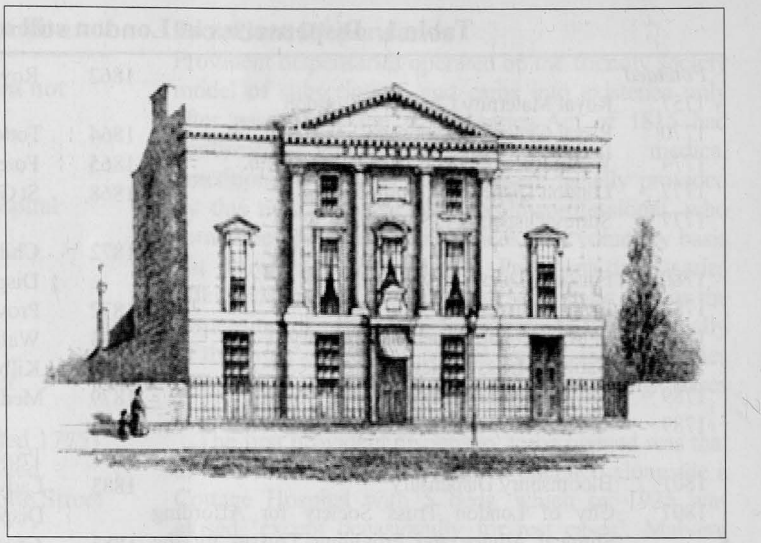

Figure 1. The Eastern Bath Dispensary, Cleveland Place East c.1857 (Bath in Time: Bath Central Library)

The growth of the dispensary movement

Following these initiatives the founding of dispensaries spread rapidly throughout the country during the late eighteenth and early nineteenth centuries. According to Trease some fifteen dispensaries were operating in London by 1800, with about the same number in the provinces. By 1840 the totals had risen to twenty three and eighty respectively.[11] Other writers give slightly different figures; Cope states that by 1800 there were 14 dispensaries in the capital, and by 1830 this number had reached 35;[12] of these 20 were still operating in 1925.[13]

Another of the early ones, founded in 1777, was the London Dispensary, which later developed into the London Hospital. This was soon followed by the Eastern Dispensary in Leman Street, founded in 1782 by doctors in the City. A larger building was erected in 1858-9 from voluntary contributions; this was designed by G H Simmonds, who was a local surveyor and the dispensary's secretary.[14] The dates given for the foundation of different dispensaries in different sources sometimes vary; this is often the result of a relocation of premises, a not infrequent occurrence.

A number of different models for the funding of dispensaries emerged over time. The main categories were those funded entirely through charitable means; dispensaries funded by contributions, including the provident and medical aid society dispensaries; and publicly-funded dispensaries, including the Poor Law Dispensaries and the Municipal Dispensaries. They were invariably highly dependant on local circumstances. The ways in which these institutions were financed has been described in detail in an edited volume by Gorsky and Sheard.[15]

By the second half of the nineteenth century working people often had a number of options available for acute medical care. Care by a general medical practitioner was frequently available through the friendly societies, but people could also get treatment and advice from a variety of dispensaries, some charitable, some provident and some under the auspices of the Poor Law.[16] Many of the archives of the dispensaries survive. A good source of these is local Record Offices, although there is a substantial collection of them to be found in the Wellcome Trust's manuscript collections in London.[17]

A considerable number of individual dispensaries have been researched and reported. Indeed eleven are listed in the index to *Pharmaceutical Historian.* These include Leslie Matthews's account of the Aldersgate Dispensary,[18] and Gordon Taylor's article on the Bloomsbury Dispensary.[19] Further references to individual or groups of dispensaries are to be found in *Medical History* and other history of medicine journals. These include Muriel Spencer's Notes on the history of dental dispensaries[20] and R Guest-Gornall's account of the Warrington Dispensary Library.[21]

The dispensary movement was still flourishing in the 1920s, and a complete list of all those still operating at that time can be found in the last edition of *Burdett's Hospitals and Charities Yearbook 1925,* before it became the *Hospital Yearbook.*[22] This provides details including year of foundation, whether home visits were undertaken, and the number of patients treated. The information included is that provided by the dispensaries themselves, and was not subjected to independent verification.

The tables list many of the dispensaries that were established in Great Britain from the start of the movement. Table 1 (p. 20), based on the last edition of *Burdett,* lists the London dispensaries still operating in 1925 by date of foundation; Table 2 (p. 21) lists the same information for provincial dispensaries. For a number of dispensaries the date of foundation is not available; many others had already closed by 1925. A list of such dispensaries in London is given in Table 3 (p. 22), and for the provinces in Table 4 (p. 23).

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Table 1. Dispensaries in London still operating in 1925

Founded	
1757	Royal Maternity Charity of London
1770	Royal General Dispensary
1774	Westminster General Dispensary, Soho
1777	London Dispensary, Spitalfields
1777	Surrey Dispensary, Southwark
1780	Finsbury Dispensary
1782	Eastern Dispensary
1785	St Marylebone General Dispensary
1786	National Truss Society
1789	City Dispensary, Grocer's Hall Court
1789	Western Dispensary, Westminster
1801	Bloomsbury Dispensary
1807	City of London Truss Society for Affording Surgical Advice and Providing Trusses for the Ruptured Poor and Persons of Limited Income throughout the Kingdom
1810	St Pancras Dispensary
1821	Islington Dispensary
1825	Stamford Hill, Stoke Newington, Clapton, West Hackney, Kingsland and Dalston Dispensary
1827	Sydenham Dispensary
1828	Farringdon General Dispensary and Lying-In Charity (was Aldersgate Dispensary originally founded in 1770)
1830	Western General Dispensary
1844	Battersea Provident Dispensary
1845	Hampstead Provident Dispensary
1845	St John's Wood and Portland Town Dispensary
1849	Clapham General and Provident Dispensary
1849	City of London and East London Dispensary
1850	Brixton Dispensary
1850	Queen Adelaide's Dispensary
1854	Chiswick and Turnham Green Dispensary
1860	Notting Hill Provident Dispensary
1862	Camberwell Provident Dispensary
1862	Kilburn, Maida Vale and St John's Wood General Dispensary
1862	Royal Surgical Aid Society
1864	Tottenham and Edmonton General Dispensary
1865	Forest Hill Provident Dispensary
1868	St George's Hanover Square Provident Dispensary
1872	Child's Hill and Cricklewood Provident Dispensary
1872	Provident Surgical Appliance Society
1873	Walthamstow Dispensary
1875	Kilburn Provident Medical Institute
1879	Medical Aid Society for Necessitous Gentlewomen
1881	Provident Medical Aid Friendly Society
1883	Lady Gomm Memorial Mission House and Dispensary
1885	Greenwich Provident Dispensary
1886	East Dulwich Provident Dispensary
1889	Clapham Dispensaries for Women and Children
1890	British Hospital for Mental Disorders and Nervous Diseases
1890	Islington Medical Mission
1894	Woolwich, Plumstead and Charlton Provident Dispensary
1895	Penge and Anerley Provident Dispensary
1899	Billingsgate Mission Dispensary
1904	St George's Dispensary and School Clinic
1909	Paddington Dispensary for the Prevention of Consumption
1911	Battersea TB Dispensary
1911	British Dentists Hospital
1911	Fulham Tuberculosis Dispensary
1911	Stepney Dispensaries for the Prevention of Consumption
1912	Deptford Institution for Prevention of Consumption
1912	Hampstead Municipal Tuberculosis Dispensary
1913	Children's Homeopathic Dispensary
1913	Greenwich Municipal Tuberculosis Dispensary
1920	Tavistock Clinic for Functional Nerve Cases
1922	Kensington Tuberculosis Dispensary

Charitable Dispensaries

Charitable dispensaries were established in increasing numbers in the second half of the eighteenth century; but this was also the time when many hospitals, with inpatient beds, were being founded, and they often competed for funds. Charitable dispensaries were particularly numerous in manufacturing towns, such as those in Lancashire and the west Riding of Yorkshire. For example, York Dispensary was founded in 1788 to provide care for the sick poor. Those seeking treatment had to get a ticket of entitlement from a subscriber to the charity; around 2,000 people a year were treated in this way.[23]

Birmingham General Dispensary was founded in 1793, some years after the founding of the General Hospital, which had started treating patients in 1779.[24] At its foundation the hospital had a subscription list that included 812 organisations and individuals, 84 per cent of whom were named male subscribers. Dispensaries usually tended to have rather fewer supporters, at least initially. There were also considerable variations in the extent of voluntary support around the country, depending on the prosperity of the area, availability of alternative services, and range of services provided. Voluntary support for dispensaries also tended to fluctuate over time, in line with economic circumstances.[25]

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Table 2: Other Dispensaries in London

Still operating in 1925, date of foundation not recorded

East and West India Docks Dispensary
City of London Union Dispensary
Kensington Dispensary and Children's Hospital
Plumstead Dispensary
Royal Kent Dispensary
Woolwich Dispensary

No longer operating by 1925

Soho Square Dispensary for the Infant Poor (founded1769)
Dispensary for General Inoculation (founded 1775)
Middlesex Dispensary, Houndsditch (founded 1777)General Lying-In Dispensary, Charlotte Street (founded 1778)
Metropolitan Dispensary (founded 1779)
Public Dispensary (founded 1782)
New Finsbury Dispensary (founded 1786)
General Dispensary, Newman Street (founded 1787)
Tower Hamlets Dispensary (founded 1792)
Universal Medical Institute, Old Gravel Lane (founded 1792)

It was not unusual for several dispensaries to be established in the same town or city. The Eastern Dispensary in Bath (Figure 1), established in 1853, was one of three such dispensaries in the city; medical and surgical treatment was available to those of limited means, provided they had a 'ticket of recommendation' from a subscriber to the charity concerned. It continued to provide such services for nearly one hundred years, only closing with the start of the NHS in 1948.[26]

The services of charitable dispensaries ranged from the provision of medicines to dentistry and midwifery. Dispensaries were sometimes provided not only for the local population but also for visitors. Whitehaven Dispensary was opened in 1783 at 107 Queen Street by a Dr Joshua Dixon. His report for that year records the treatment of scorbutic eruptions. Whitehaven was an important port at that time, and most of these patients were probably seamen who endured long voyages on a poor diet.[27] Other conditions seen were dropsy, consumption and 350 cases of smallpox. Dixon was a strong advocate of vaccination, and by 1801 there were only nine cases of natural smallpox, but 277 cases of scorbutic eruptions. Eventually the building became inadequate, and in May 1830 an infirmary was opened nearby in Howgill Street, at which time the dispensary closed.

Some dispensaries were established as a response to medical emergencies. Queen Adelaide's Dispensary in Pollard Row in London was founded in 1849 by the vicar of St James-the-less in Bethnal Green. Its foundation followed hard on the heels of a serious cholera outbreak. It was rebuilt in 1865-6.

Provident Dispensaries

Provident dispensaries operated on the friendly society model of subscription, and came into existence only after passage of the Apothecaries Act of 1815 had confirmed apothecaries as general medical practitioners. Medical services were usually provided by this new breed of local health professional, who sometimes provided their services on a voluntary basis but were sometimes salaried. Provident dispensaries offered diagnostic and treatment services as well as the dispensing of medicines. Subscriptions were typically of the order of a penny a week, and such dispensaries provided a valuable service to the urban working classes in many towns.

The first provident dispensary to be opened was that in Warwick, founded in 1823. It operated alongside a Cottage Hospital with 5 beds, which by 1925 was closed 'except occasionally for rest cases'. Malvern Provident Dispensary followed in 1830, and Brighton opened one in 1849. In London the first provident dispensary was opened in Battersea in 1844, with ones in Hampstead and Clapham following in 1845 and 1849 respectively.

Working for Friendly Societies (which catered only for working men) rather than for entirely charitable dispensaries was generally preferred by doctors, since they were able to keep women and children as private patients. They received a fixed income for providing an agreed range of services, rather than having to account individually for every patient seen. Medical practice in Friendly Society dispensaries generally included 'attending on and providing medicines for the members'.[28]

Medical Aid Society Dispensaries

Competition amongst doctors for Friendly Society work was often fierce, with the result that some practitioners were prepared to underbid their colleagues. But sometimes medical staff colluded with a view to forcing up their charges to the Societies. Where this happened Friendly Societies often responded by clubbing together themselves to establish both dispensaries and Medical Aid Associations, which employed their own doctors.

These ran on similar lines to provident dispensaries, but unlike the latter, medical aid societies were run on a for-profit basis.[29] The organisation of most of these institutions was in fact largely in the hands of the doctors. They were usually entirely controlled by a committee of the medical men working within them. Rules and regulations were set out in detail, including arrangements for the supply of medicines.[30]

The Glasgow Medical Missionary Society was typical. It was founded by a group of Glasgow men and women in 1867. Its aim was to provide essential medical services for the poor, at a time when around one in five Glaswegians died without seeing a doctor or receiving medical assistance because they were unable to afford the fees.[31] It set up a number of dispensaries in the Glasgow area. The first was erected in the Havannah in the city centre in 1873, but it was soon demolished.

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Table 3. Dispensaries in the Provinces still operating in 1925

Founded

1775 Bristol Dispensary
1777 Newcastle-upon-Tyne Dispensary
1778 Liverpool Dispensaries

1782 Carlisle Dispensary
1786 Whitby Public Dispensary
1788 York Dispensary
1789 Horncastle Public Dispensary

1793 Birmingham General Dispensary
1798 Chester Benevolent Institution for Lying-In Women
1798 Plymouth Public Dispensary

1801 Exeter Lying-in Charity
1802 Hull Lying-in Charity
1802 North Shields and Tynemouth Dispensary
1802 Reading Dispensary Trust
1804 Wiveliscombe Dispensary, Somerset
1807 Oxford Medical Dispensary and Lying-in Charity
1812 Bristol Eye Dispensary
1812 Clifton Dispensary
1814 Hull and Sculcoates Dispensary
1815 Tewkesbury Dispensary
1816 Morpeth Dispensary
1818 Exeter Dispensary
1819 Ramsgate and St Lawrence Dispensary

1820 Crickhowell Dispensary
1822 Worcester Dispensary and Provident Medical Institution
1823 Southampton Charitable Dispensary, Dental Institution and Humane Society
1823 Warwick Provident Dispensary and Cottage Hospital
1824 Ledbury Dispensary
1824 Leeds Public Dispensary
1826 Lincoln General Dispensary
1826 Chorlton-upon-Medlock Dispensary, Manchester
1827 Welshpool Dispensary
1828 Gainsborough Dispensary
1828 Workington Dispensary
1830 Hastings Dispensary
1830 Malvern Provident Dispensary

1831 Gloucester Dispensary
1831 Nottingham General Dispensary
1831 Richmond Dispensary, Surrey
1832 Barnstaple and North Devon Dispensary
1832 Bath Eastern Dispensary

1832 Gateshead Dispensary
1832 Norwich Maternity Institution
1834 Wellington Dispensary
1835 Barnard Castle Dispensary
1835 Newbury Dispensary and Provident Medical Club
1835 Richmond Dispensary, Yorkshire
1836 Canterbury Dispensary
1837 Bath Western Dispensary
1837 Grantham Self-Aiding Dispensary

1840 Royal Portland Dispensary
1842 Ryde Dispensary
1844 Sandgate Dispensary and Parish Worker Fund
1845 Dudley Dispensary
1849 Hythe Dispensary
1849 Brighton, Hove and Preston Provident Dispensary
1850 Bath Southern Dispensary
1858 East Grinstead General Dispensary

1861 Seckford Dispensary, Woodbridge
1862 Ely Dispensary
1863 Bedford Provident Dispensary and Public Medical Service
1868 Devonport and Stonehouse Provident Dispensary
1868 Exmouth Dispensary
1869 Leamington Provident Dispensary
1869 Hulme Dispensary, Manchester

1871 Miss Ann Copland's Village Hospital Charity, Wembley
1872 Bristol Medical Missionary Society's Dispensary
1873 Oxford Homeopathic Medical Dispensary
1874 Accrington Medical Dispensary
1876 Beckenham Provident Dispensary
1877 Suffolk County Medical Club (Ipswich)
1877 Tunbridge Wells Provident Dispensary
1877 West Cowes Provident Dispensary
1879 Cheltenham Provident Dispensary
1879 Rugby Provident Dispensary

1886 Newcastle-upon-Tyne Hospital for Diseases of Women
1888 Firth Provident Medical Dispensary, Wantage
1895 Birmingham Sands Cox Provident Association
1896 Andover and District Dental Dispensary

1907 Erdington Provident and General Dispensary
1911 Edgar Allen Institute, Sheffield

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A second was erected at Moncur Street in the Carlton in 1879, and yet another was opened in Oxford Street in the Gorbals in 1884. The Society charged one penny for each consultation, and the rest of the money required to fund the service was raised through donations.

Table 4: Other Dispensaries in the Provinces

Still operating in 1925, date of foundation not recorded

Abergavenny Dispensary
Bristol Provident Medical Institution Dispensary
Bristol Read Dispensary
Chard Harvey's Hospital and Charity
Chester Homeopathic Dispensary
Middlesex County Council Tuberculosis Dispensary (Hounslow)
Leyburn Dispensary (Yorks)
Liverpool Dispensary for Women and Children and Infant Welfare Clinic
Liverpool Medical Mission
Manchester Radium Institute
Manchester and District Surgical Aid Society
Cutler Boulter Provident Dispensary, Oxford
Reeth Dispensary (Yorks)
Salford, Greengate Dispensary and Grimke Ward for Cripples

No longer operating by 1925

Helston Public Dispensary (founded 1809, closed 1923)
Warrington Dispensary (founded 1810, closed 1874)
Whitehaven Dispensary (founded 1783, closed 1831)
Wolverhampton Dispensary (founded 1821, closed 1848)

Public Dispensaries

Public Dispensaries were entirely free, and were funded from charitable sources. One of the first was Whitby Public Dispensary, opened in 1786. Horncastle Public Dispensary followed in 1789, but this was later used for both free and provident patients. Plymouth Public Dispensary opened in 1798, and this was also open to both provident and free patients.

A dispensary for the sick poor was established in Wigan in 1798. This quickly outgrew its premises, and it moved to new premises in King Street in 1801. The earliest Wigan Dispensary Rules and Reports are to be found in the Wigan Public Library.[32] The dispensary eventually became redundant with the founding of the Royal Albert Edward Infirmary in 1873.

A dispensary was opened in Wiveliscombe in Somerset in 1804 by Dr Henry Sully and a surgeon colleague called Mr Bishop Cranmer. It was for the benefit of 'servants, apprentices, labourers and mechanics'.[33] This continued until 1949, and the dispensary eventually became the premises for the local GPs. Complete records for it between 1816 and 1949 are available in the Somerset Record Office in Taunton.[34] A Public Dispensary was opened in Helston in 1809, but this was closed in 1923. Leeds opened a Public Dispensary in North Street in 1824, and this was free to all.

Lincoln General Dispensary opened in 1826 and was free, but only by recommendation. The records for this dispensary, from 1826 until 1979, are lodged at the Lincolnshire Archive Office.[35] Similarly Exmouth Dispensary, opened in 1868, was free by ticket, and Richmond (Surrey) Dispensary, opened in 1831, was free by letter. Many histories of early dispensaries are to be found within the histories of individual hospitals, of which a great many have been written. For example a London University Dispensary opened on 28 September 1828 in George Street, Euston Square, but it remained in use only until such time as the first University College Hospital opened on 1 November 1834.[36]

Poor Law Dispensaries

The Poor Law Amendment Act of 1834 added another dimension to the provision of dispensary services.[37] This had created a network of local unions that replaced the old parish system of relief, and with it a complex pattern of finance. Those responsible for the administration of the Poor Law briefly engaged in a programme of providing dispensaries in the 1870s. Some forty-four dispensaries were established in London alone between 1871 and 1888, although many fewer were established in the provinces.[38] But the programme was soon curtailed as a result of moral as well as financial considerations. Poor Law institutions faced a losing battle to control expenditure, despite attempts to broaden their sources of income.

Local authorities were sometimes persuaded by urgent local problems to open dispensaries directed at special needs. Manchester and Leicester were both plagued by high infant mortality rates (around 200 per thousand births). In an effort to reduce these rates both cities arranged to supply diarrhoea medicines free to the 'artisan and poorer classes' during the 1870s, in the hope of reducing the death toll. Between 10 July and 30 September 1878 more than 3,000 people (half of them children) were treated for diarrhoea in Leicester alone.[39]

For the destitute, the 'outdoor' medical relief which was provided under the Poor Law was an essential standby early in the nineteenth century. It supported more than 300,000 people in 1860 alone. But after 1871 it was phased out, forcing greater self-reliance and increasing the number of calls on voluntary hospitals, dispensaries and medical clubs.[40] At the same time, Poor Law relief of any kind carried a social stigma, which meant that the poor avoided calling on it until absolutely necessary.

Municipal Dispensaries

A major development in the public provision of health care took place in 1871 with the creation of the Local Government Board. This was a national initiative designed to provide new mechanisms by which the public's health might be improved. The initial focus was

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on the creation of municipal hospitals, particularly isolation hospitals established to treat patients with infectious diseases.[41] However, implementation of this initiative was both slow and piecemeal throughout England and Wales prior to the First World War. By 1879 only 296 of the 1,593 sanitary authorities in England and Wales had isolation hospital provision.

Municipal dispensaries began to appear, mainly in the London area, in response to the rise in incidence of tuberculosis at the beginning of the twentieth century. The first was the Paddington Dispensary for the Prevention of Consumption, opened in 1909. This was followed in quick succession by the Battersea Tuberculosis Dispensary, the Fulham Tuberculosis Dispensary and the Stepney Dispensaries for the Prevention of Consumption, all opened in 1911. The Deptford Institution for the Prevention of Consumption and the Hampstead Municipal Tuberculosis Dispensary both opened a year later, in 1912. The Greenwich Municipal Tuberculosis Dispensary opened in 1913, and the Kensington Tuberculosis Dispensary followed over ten years later still, in 1922.

Apothecaries as founders in the dispensary movement

Many apothecaries had very close links with individual dispensaries. Some were involved in their foundation, whilst others were employed by them. Indeed, as indicated earlier, John Coakley Lettsom (1744-1815) was closely involved in the birth of the dispensary movement itself. Lettsom began a five year apprenticeship in 1761 with Abraham Sutcliffe, an apothecary and surgeon in Settle, Yorkshire.[42] He went on to qualify as a physician, but he continued to hold apothecaries in high regard. He was a founder member of the Medical Society of London, which had a membership of thirty physicians, thirty apothecaries and thirty surgeons.

But Lettsom was by no means unique. In towns around the country local apothecaries were instrumental (often in conjunction with their fellow practitioners) in founding hospitals, sick rooms and dispensaries to provide free medicines to the sick poor. Not surprisingly such initiatives tended to be more common in larger towns than in smaller places.[43] Joshua Dixon, the founder of Whitehaven Dispensary, is described in some sources as 'a chemist and apothecary'.[44] He was prompted to found a dispensary so that 'the poor should be treated at the public expense' by his mentor, William Browrigg, following outbreaks of Gaol Fever (typhus) in 1757 and 1758. Dixon was one of a not insignificant number of young men who started out training to be apothecaries but who subsequently qualified as physicians.

James Kendrick was another of this new breed of philanthropic apothecary. The Warrington Dispensary was established in 1810 through his zeal and energy, when he was just thirty years old.[45] On 16 January 1785, two days after his fifteenth birthday, he had been apprenticed to a local apothecary, James Hankinson. He had subsequently prospered. Kendrick was keen to associate the dispensary with a literary and scientific society, and with the help of influential friends he was able to move the dispensary to a larger building in 1819 which incorporated a small library. Two apprentices were attached to the dispensary, and their indenture fees of £25 were allocated to the library funds. Kendrick went on to have a very successful career, becoming a fellow of the Linnean Society and publishing several medical treatises. He continued practising at the dispensary until he died at the age of 76.

Apothecaries as employees in the dispensary movement

When the College of Physicians opened their first dispensaries in London in 1696, in one of them at least an apothecary was employed to make up the medicines.[46] The catalogue of the Society of Apothecaries in 1779, over eighty years later, shows that by that time there were seventeen hospitals in the London area, including three asylums for lunatics and seven dispensaries. These were the General Dispensary in Aldersgate Street, the Soho Square Dispensary for Infant Poor, Westminster General Dispensary in Soho, Surrey Dispensary in Southwark, Middlesex Dispensary in Houndsditch, London Dispensary in Norton Folgate, and the Dispensary for General Inoculation. According to Matthews practically all of these were staffed by apothecaries, who would supply any medicines required.[47] Some of these dispensaries expanded rapidly and quickly moved to larger premises.

The same was true of dispensaries in the provinces. The first Dispensary in Liverpool was established in John Street in 1778; within three years it moved to a new building in Church Street (Figure 2), which opened

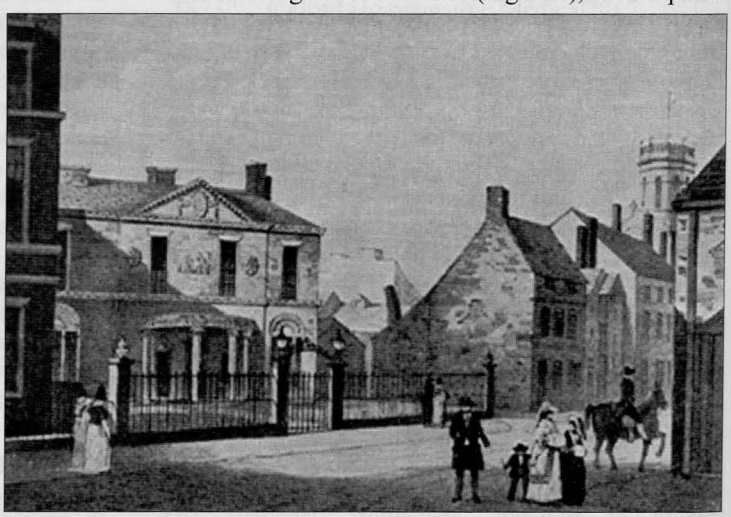

Figure 2. The Old Dispensary, Church Street, Liverpool
Erected 1781, demolished 1823
(picture from Liverpool: Strangers Guide)

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in 1781. This was demolished in 1823, to be replaced by two others, one in Vauxhall Road and one on Upper Parliament Street. By 1834 'three physicians, three surgeons, and an apothecary attend each of these establishments, at which medical advice and surgical assistance are given every day, except Sunday, at the hours of nine, ten, and eleven in the morning. A president and two auditors superintend the management of each dispensary'.[48]

When the Leeds Dispensary was established in 1824 it also employed its own apothecary from the beginning. The apothecary was responsible for supplying all the medicines. The dispensary 'affords medical and surgical aid to the poor and friendless, as outpatients; and those that are not able to stand at the dispensary are visited at their own houses by the physicians and surgeons. It relieves about 3,000 patients per annum, at the cost of about £600, but it is regretted that its expenditure often exceeds its receipts. Mr J J Ayre is the house apothecary'.[49]

The apothecaries who originally staffed these dispensaries gradually came to combine the role of resident medical officer and hospital administrator, as the dispensaries grew and introduced beds for those requiring admission. The pharmaceutical side of their duties was gradually delegated to an 'assistant apothecary' or 'dispenser'.[50] Before the Wolverhampton Dispensary (Figure 3) was opened (on Tuesday 10 July 1821, with 7 beds) an advertisement was placed for a resident surgeon and an apothecary, who were in addition to two physicians and two surgeons.[51] The dispensary was an immediate success, and plans for a new building were made at the end of 1824; the new facility opened in July 1826 with an additional 14 beds. In 1833 it was expanded again to contain casualty wards and an additional 16 beds. By 1838 the resident staff consisted of one surgeon at £80 a year, a matron at £25 a year, a number of servants at £8 each per year, and a 'dispenser' at £50 per year.

Some dispensaries, and indeed hospitals such as the Manchester Infirmary, relied for their pharmaceutical services on a visiting apothecary.[52] Increasingly however, they bought crude drugs, chemicals and galenicals from outside firms, and hence the amount of skilled pharmaceutical work required was reduced to a minimum.

Supply of medicines from Dispensaries

Arrangements for the supply of medicines varied considerably. For the smaller institutions the usual arrangement was for the physician to hand out the medicine at the end of the consultation. But whether supplied by the physician or the apothecary the patient was usually expected to provide their own container; so it was not unusual for mixtures to be dispensed in old beer bottles, or for ointments and creams to be supplied in broken cups with no handles. Dispensaries were always short of money, and the supply of medicines was usually an easy target for savings.

By 1842 subscriptions to the Wolverhampton Dispensary failed to cover costs, and the management committee had to appeal for increases in subscriptions and donations; in the same year the dispenser was given notice. It seems these two events were not unconnected, for his replacement was required to ensure that drugs were 'only purchased when requested by the medical committee, and dispensed when authorised by the house surgeon'. One of his early tasks was to tender for the supply of 'good healthy leeches' for a year; a contract for the leeches was accepted at 16 shillings per 100.[53] This dispensary was to have only a short life; in November 1844 plans were agreed for a new hospital, which eventually opened its doors on 1 January 1849. In August 1848 the decision was taken to transfer the Dispensary to the new hospital, and Wolverhampton Dispensary closed its doors for the last time on 31 December 1848.

It was around this time that anaesthesia began to be practiced for surgical operations. In fact the third operation ever to be performed under general anaesthetic was carried out on 1 January 1847 in the Wolverhampton Dispensary. A young woman was anaesthetised using ether prior to amputation of a thigh. Anaesthetics were normally given by physicians; increasingly physicians specialised in the new field of anaesthesia. This was certainly the case at the dental dispensaries. In 1871 the staff of the Birmingham Dental Dispensary included 'Charles Sims as a dental officer and Lloyd Owen as chloroformist, and also a consulting physician and a consulting surgeon. The hospital could now open daily at 9 o'clock, and nitrous oxide gas was administered for painless extractions'.[54]

Similar arrangements were made at the other dental dispensaries. At the tenth annual meeting of the

Figure 3. The Dispensary, Wolverhampton, in 1821
(Historic Buildings of Wolverhampton)

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Liverpool Dispensary for Diseases of the Teeth, held in 1871, it was announced that 'nitrous oxide gas had been introduced as an anaesthetic, with perfect success in all cases where it was employed. The hospital had been presented also with the gift by James B Lloyd, one of the honorary dental surgeons, of the complete apparatus for preparing nitrous oxide, but the limited space in the hospital prevented its use for the time being'.[55]

The founding of a dental dispensary in Brighton was a matter of some controversy. Plans for it were postponed on at least two occasions, the first in 1861, and the second six or seven years before it was finally established in 1886. When it eventually opened its aims were clearly spelled out by one of the dental surgeons who also acted as its honorary secretary, W Harrison. 'Special operations include treating and filling carious teeth, extraction of useless teeth under nitrous oxide gas, ether or chloroform, irregularities of the teeth etc…' In none of these cases is the source of the ether given, but the physicians involved usually obtained their supplies from the growing number of wholesalers rather than from the local apothecary.

The role of pharmaceutical wholesalers

In fact most of the dispensaries appear to have traded directly with pharmaceutical wholesalers. The Carey Street Dispensary in London had around 1,500 patients per month, and the orders for medicines were put out to tender. Contracts were awarded to wholesaling druggists such as Corbyns, Hodgkins, Wilsons and Remnants. Competition between wholesalers was fierce, and they had to remain competitive because their prices were audited to see that they remained so.

The cost of supplying small quantities of a wide variety of medicines was high. There are no records of chemical manufacturers supplying dispensaries direct, even when the order was very large and the dispensary was close to the factory. It has been suggested that this may have been the result of a commercial understanding between wholesalers and manufacturers.[57]

Collectively the dispensaries contributed substantially to the turnover in drugs by both manufacturers and wholesalers. In London alone, they were treating 50,000 people per year. A single dispensary's budget for medicines might be as high as £150, or 2.5 per cent of Allen & Hanbury's turnover.

Some of the larger institutions had their own dispensaries ('dispensaries within dispensaries', although they were more frequently referred to as the 'apothecary's shop'). Later on the Friendly Societies often made arrangements whereby patients were given prescriptions to take to the local chemist's, to be dispensed from an agreed formulary at a pre-set price. The late nineteenth century saw a great expansion in the number of retail pharmacies. In 1865 there were about 10,000 shops licensed to sell patent medicines; by 1905 the figure had risen to more than 40,000.[58]

Concern was often expressed about the quality of the medicines supplied. During the second half of the nineteenth century controls over the content and quality of drugs and patent medicines were minimal. The Sale of Food and Drugs Act of 1875 provided some protection against adulteration, and it required local authorities to appoint public analysts. But in other respects there was little regulation of the drug trade.[59] There were also concerns about the quality of the dispensing of some chemists, which reached a peak following implementation of the National Health Insurance (NHI) Act of 1911. One county check on the accuracy of dispensing, performed as part of a national audit, found nearly one third of NHI prescriptions to be sub-standard.[60]

After the 1911 NHI Act it was claimed that standards of health care were higher in Scotland than in England and Wales, and that this was due at least in part to the dominance of state provision ('panel') over friendly society ('club') in that country.[61] It was authoritatively stated that, unlike their English counterparts, Scottish panel doctors were free to use the latest pharmaceutical remedies, and that they prescribed them regularly.[62] According to the superintendent of the Central Checking Bureau in Glasgow 'coal tar, arsenical compounds, colloidal preparations, vaccines, sera and insulin are regularly prescribed'.[63] Patients in municipal dispensaries appear to have been better served pharmaceutically than those in provident ones.

Conclusions

The fate of the dispensaries was largely sealed by the Royal Commission on the Poor Laws in 1905. Although 14 of 18 members of the Commission recommended that the dispensary system should be extended, the other 4 members (including Beatrice Webb) were opposed to any extension. As a result the National Health Insurance Act of 1911 made no mention of dispensaries, and their importance rapidly diminished, despite the subsequent founding of a number of tuberculosis dispensaries in London. However, as we have seen, many were still functioning in 1925, and some continued beyond then to treat women and children who were not covered by the National Health Insurance Scheme.

With the introduction of the National Health Service in 1948 the need for dispensaries effectively vanished altogether. But some did continue as voluntary centres providing specialist services not generally available on the NHS. The Friendly Societies were of course mutual insurance organisations, and some owned substantial facilities for the benefit of their members. Some of these continue to this day; they include Benenden Hospital in Kent and The Retreat in Yorkshire.

This article has provided a brief summary of the dispensary movement in England, from its origins to its disappearance; it has described the various roles played by apothecaries in this movement; and it has explored the way in which medicines were supplied to patients attending dispensaries. It is also hoped that it may encourage others to carry out further research on the pharmaceutical aspects of the dispensary movement by making use of the often very substantial quantities of archival material that is available to them locally.

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Endnotes and References

1. Hartston W. Medical Dispensaries in Eighteenth Century London. *Proceedings of the Royal Society of Medicine* 1963; 56: 753-758.
2. Cope, Sir Zachary. The History of the Dispensary Movement, chapter 4. In Poynter FNL (ed.) *The Evolution of Hospitals in Britain*. London: Pitman Medical, 1964: 73-76.
3. Loudon ISL. The Origins and Growth of the Dispensary Movement in England. *Bulletin of the History of Medicine* 1981; 55: 322-342.
4. Granshaw L. The Medical Profession and Specialist Hospitals in Britain, 1800 to 1948, chapter 8. In Granshaw L and Porter R (eds). *The History of the Hospital*. London: Routledge, 1989: 199-220.
5. Chamard MJ. *Medicine and the working class: the dispensary movement in London, 1867-1911*. Toronto: University of Toronto Press, 1984.
6. Croxson B. The public and private faces of eighteenth-century London dispensary charity. *Medical History* 1997; 41 (2): 127–149.
7. Griffin JP. A Short History of the Dispensary Movement in London from 1675 to 1948. *Adverse drug reactions and toxicological reviews* 2000; 19 (4): 249-264.
8. Cope, Sir Zachary. Reference 2, 73.
9. Trease GE (1964) *Pharmacy in History,* London: Bailliere, Tindall and Cox, 155.
10. Trease GE. Reference 9, 181.
11. Trease GE. Reference 9, 171.
12. Cope, Sir Zachary. Reference 2, 76.
13. Granshaw, Lindsay. Reference 4, 210.
14. Looking at Buildings *www.lookingatbuildings.org.uk* accessed 20 April 2009.
15. Gorsky M and Sheard S (eds). *Financing Medicine: The British Experience since 1750*. London: Routledge, 2006.
16. Hardy A. *Health and Medicine in Britain since 1860*. Basingstoke, Hants: Palgrave, 2001, 18.
17. Western Manuscripts and Archives Catalogue, London: Wellcome Library. Available online at *http://archives.wellcome.ac.uk*
18. Matthews LG. The Aldersgate Dispensary and the Aldersgate Medical School. *Pharmaceutical Historian* 1983; 13 (3): 7-10.
19. Taylor GC. The Bloomsbury Dispensary, Then and Now. *Pharmaceutical Historian* 1990; 20(1): 2-5).
20. Muriel SE. Notes on the History of Dental Dispensaries. *Medical History* 1982; 26: 47-66.
21. Guest-Gornall R. The Warrington Dispensary Library. *Medical History* 1967; 11 (3): 285-296.
22. *Burdett's Hospitals and Charities Yearbook 1925*. London: Scientific Press.
23. Barnett MC. Life in Nineteenth Century York. *Pharmaceutical Historian* 1984; 14 (2): 3-5.
24. Reinartz J. Charitable Bodies: The Funding of Birmingham's Voluntary Hospitals in the Nineteenth Century, chapter 3. In Gorsky M and Sheard S (eds). Reference 15, 40-58.
25. Mohan J. The Caprice of Charity: Geographical Variations in the Finances of British Voluntary Hospitals before the NHS, chapter 5. In Gorsky M and Sheard S (eds). Reference 15, 77-92.
26. Medical Heritage (2009) *www.medicalheritage.co.uk* accessed 20 April 2009.
27. Anon. Leeches and Lancets. *Pharmaceutical Historian* 1983; 13 (3): 12.
28. Gorsky M . Friendly Society Health Insurance in Nineteenth Century England, chapter 9. In Gorsky M and Sheard S (eds). Reference 15, 154.
29. Morrice A. Strong combination: The Edwardian BMA and Contract Practice, chapter 10. In Gorsky M and Sheard S (eds). Reference 15, 174.
30. Morrice A. Strong combination. Reference 29, 175.
31. TEMP.2039/140.78.250, City Archives, Glasgow City Council, quoted in *http://www.theglasgowstory.com* accessed 20 April 2009.
32. Anon. Wigan Dispensary. *Pharmaceutical Historian* 1981; 11: 2, 6.
33. Medical Heritage (2009) *www.medicalheritage.co.uk* accessed 20 April 2009.
34. Anon. Useful documents. *Pharmaceutical Historian* 1992; 22: 3, 6.
35. Anon. Useful documents. Reference 34.
36. Whittet TD. The Crown and Anchor and the Arts and Sciences. *Pharmaceutical Historian* 1983; 13 (4): 5-8.
37. Waddington K. Paying for the Sick Poor: Financing Medicine under the Victorian Poor Law: The Case of the Whitechapel Union 1850 to 1900, chapter 6. In Gorsky M and Sheard S (eds). Reference 15, 112-129.
38. Brand JL. *Doctors and the State: The British medical profession and government action in public health 1870 to 1914*. Baltimore: Johns Hopkins University Press, 1965, 99.
39. Hardy A. Health and Medicine in Britain. Reference 16, 19.
40. Hardy A. Health and Medicine in Britain. Reference 16, 20.
41. Sheard S. Reluctant Providers?: The Politics and Ideology of Municipal Hospital Finance 1870 to 1914. In Gorsky M and Sheard S (eds). Reference 15, 112-129.
42. Burnby JGL. A Study of the English Apothecary from 1660 to 1760. *Medical History Supplement Number 3*. London: Wellcome Institute for the History of Medicine, 1983, 73.
43. Corfield PJ. From Poison Peddlers to Civic Worthies: The Reputation of the Apothecaries in Georgian England. *Social History of Medicine* 2009; 22: 1, 9.
44. Brownrigg W (1774) Whitehaven in Early Coal Research *www.lakestay.co.uk/sal.htm* accessed 20 April 2009.
45. Guest-Gornall R. Warrington Dispensary. Reference 21, 286.
46. Matthews LG. *History of Pharmacy in Britain*. London: E & S Livingstone, 1962, 113.
47. Matthews LG. Reference 46, 175.
48. Anon. *Picture of Liverpool: A Stranger's Guide*, 1834, quoted in *www.old-liverpool.co.uk/dispensary* accessed 20 April 2009.

https://doi.org/10.24355/dbbs.084-201803121401

49. White W. History, *Gazeteer and Directory of the West Riding of Yorkshire, with the City of York and Port of Hull*, 1837, quoted in *www.institutions.org.uk/dispensaries/YKS/yorkshire_dispensaries.htm* accessed 20 April 2009.
50. Trease GE (1964) Pharmacy in History, Reference 9, 171.
51. Local History *www.localhistory.scit.wlv.ac.uk/articles/health/dispensary.htm* accessed 20 April 2009.
52. Trease GE. Pharmacy in History. Reference 9, 171.
53. Fox N. *A History of the Royal Hospital, Wolverhampton*. Department of Medical Illustration and Graphic Design, New Cross Hospital, Wolverhampton, 1949.
54. Spencer EM. Notes on the History of Dental Dispensaries. *Medical History* 1982; 26: 51.
55. Hopper J. *The History of the Liverpool Dental Hospital 1860 to 1960*. Liverpool: United Liverpool Hospitals, 1960.
56. Spencer EM. Dental Dispensaries. Reference 54, 57.
57. Morson AF. Pharmacy in the 1840s: The wholesale chemist and druggists. *Pharmaceutical Historian* 1991; 21: 4, 6.
58. Chapman S. *Jesse Boot of Boots the Chemist.* London: Hodder and Stoughton, 1974.
59. Hardy A. Health and Medicine in Britain. Reference 16, 21.
60. NRO SONH 1/1, Nottinghamshire Insurance Committee Minutes, 1912-27, minute of 27 May 1921, quoted by Digby. In Gorsky M and Sheard S (eds). Reference 15, 198.
61. Digby A. The economic and medical significance of the British National Health Insurance Act 1911, chapter 11. In Gorsky M and Sheard S (eds). Reference 15, 182-198.
62. TNA:PRO MH 62/151, Court of Inquiry into Insurance Practitioners Remuneration, 1923 for evidence from the Scottish Association of Insurance Committees and the National Association of Insurance Committees, quoted by Digby. In Gorsky M and Sheard S (eds). Reference 15, 196.
63. TNA:PRO MH 62/151, Court of Inquiry into Insurance Practitioners Remuneration, 1923: Evidence of Scottish Association of Insurance Committees. P.4, quoted by Digby. In Gorsky M and Sheard S (eds). Reference 15, 195. quoted by Digby in Gorsky M and Sheard S (eds.) Financing Medicine, Note 15, 195.

Provenance of Egyptian Eye Cosmetics

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The element lead has four naturally occurring, non-radioactive, isotopes: $Pb^{204/206/207/208}$. Most elements, with multiple non-radioactive isotopes, have isotope ratios that are the same regardless of the element's location in the earth's crust. Lead, however, has isotope ratios that vary with its geographical location. These isotopic differences result from varying ages of lead ores and that the $Pb^{206/207/208}$ isotopes are radiogenic that is they are formed as the end products of the very slow radioactive decay of Uranium and Thorium. Thus, ores formed at different periods of geological time will exhibit different lead isotope values, giving each ore a lead isotope 'signature'. The often unique signatures, of differing ore bodies, allow predictions to be made concerning the provenance of lead in archaeological artifacts. This is done by matching the artifact's lead isotopic ratios (LIRs) with those found for the various regions/mines of past and present lead ores by using a suitable reference data-base of LIRs from lead ores of known sources.[1]

Lead isotope analysis (LIA) was used in several wide-ranging studies of archaeological artifacts,[2] and later in the study of: Islamic glazes[3,4] and (ancient) Egyptian glass, glazes, pigments and eye cosmetics (kohls).[5,6,7,8,9] It has also been variously used in environmental health[10,11] and science[12] studies. Also, as the accuracy and precision of the technique has improved, it can now be used to accurately determine the LIRs of *trace* amounts (i.e. ppm or even ppb) of lead present in other metal-based artifacts (e.g. copper[13]).

However, the technique does have its limitations. Firstly, the LIRs of individual ore bodies are not as unique as was first thought; with considerable (LIR) overlap often occurring between geographically diverse regions.[2] In addition, the LIR range within a country can be surprisingly large (e.g. Egypt).[9] Secondly, the lead isotope record is incomplete and, whilst some current LIRs appear to be unique to a particular region (or even mine), it is possible that a source in a geologically very similar region (and hence giving very similar LIR values) will be discovered in the future. Thirdly, metal in antiquity was a valuable resource and so was routinely re-used. This repeated recycling/re-melting would have resulted in a mixing of lead from different sources. Thus the LIRs of an artifact produced from such lead would be representative of a mixture of sources, rather than a single source.[5,9] Lastly there is the matter of interpretation of the (LIR) results, especially with

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respect to their archaeological context. A non-equivocal interpretation of LIRs must depend on the successful combination of the scientific results with the appropriate (archaeological) cultural data and social theories.[14] When such an combination is achieved the LIA technique is found to be a powerful discriminant.[15]

Traditional eye cosmetics (kohls) have been used in Egypt for at least five thousand years. In the predynastic period (5500 to c. 3100 BC[16]) the colour green appears to have predominated, whilst from the proto-dynastic period (i.e. from c. 3100 BC) the colour black becomes more common. This black eye cosmetic, often based on galena (PbS),[17] is still to be found in the souks (local markets) of modern-day Egypt. The provenance of such past and present galena is often uncertain, and LIA has been successfully used to determine the country and even the mine of origin of Pharaonic samples.[5,6,9]

Samples studied

We recently undertook preliminary LIA on a selection of Egyptian eye cosmetics; both ancient (Pharaonic) and modern-day samples. The study was done in order to

A) compare the lead sources of old and new black/grey-black/grey Egyptian kohl samples, and

B) determine the source of the lead (present in *non-trace* amounts, see later) in a copper-based green coloured ancient Egyptian kohl sample.

Figure 1. Kohl samples from the main souk of present-day Cairo.

A total of five samples were subjected to LIA; two (E3 and E13, see Figure 1) from the main souk of present-day Cairo and three (H234/5, and M6, see Figure 2 for its 'Blue Marble' pot) from ancient Egypt.

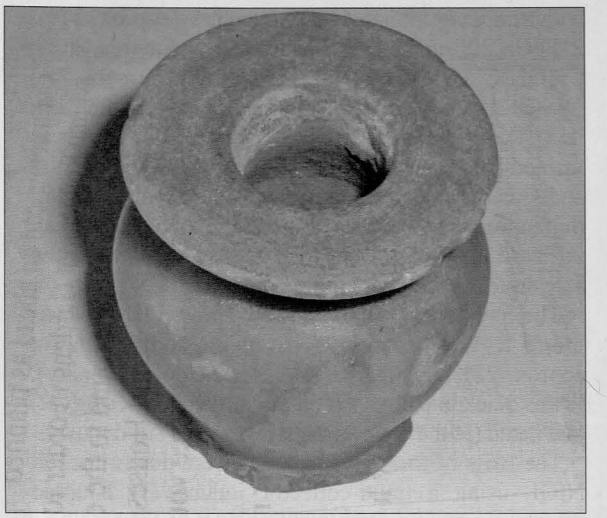

Figure 2. 'Blue Marble' pot.

The chemical compositions of four of these samples (E3, E13, H235 and M6) have been previously published. The analytical techniques of XRPD (X-Ray Powder Diffraction; for E3, E13 and H235) and QEMSCAN (Quantitative Evaluation of Minerals by Scanning Electron Microscopy; for M6) were used to determine the compounds present. The first technique (XRPD) provides identification of the crystalline compounds present, and also gives their semi-quantitative percentages. The second technique (QEMSCAN) can quantitatively identify inorganic/mineral compounds (which can be crystalline or amorphous) in very small amounts of material.[17]

Both the modern-day samples had, as their major component, galena.[18] The silver-grey lump (E3) also had a small amount (approx. 1%) of anglesite (PbSO4) present. The grey-black powder (E13) had small amounts (i.e. a few percent each) of anglesite and cerussite (PbCO3) present. In both samples it was assumed that these minor components were from weathering/oxidation of the original galena ore. Both samples were said to be (by the souk shop-keepers) "made in Egypt".

The grey powder of sample M6 was found to contain 91.5/ 92.3 % of lead compounds. These were thought to be one or more of the following: sulphide, carbonate, sulphate, hydroxy-carbonate or hydroxy-chloride.[17,19] The sample was dated (by the Royal Albert Memorial museum) to Middle Kingdom (i.e. 2055–1650 BC[16]) from its 'Blue Marble' (i.e. anhydrite, $CaSO_4$) pot. The limited contextual data available for this pot indicated that it was found at Abydos (Upper Egypt) in 1922 by (Sir) W.M.F. Petrie.

The green sample of ancient Egypt (H235)[20] was found at Tell-el-Yehudiyeh (Lower Egypt) in 1906 and was dated (at the excavation site) to the 18th dynasty (i.e. 1550–1295 BC[16]). The main component was found to be malachite [approx. 55%; $CuCO_3.Cu(OH)_2$];

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with minor components of: cumengeite [approx. 27%; $21PbCl_2.20Cu(OH)_2$], atacamite [approx. 11%; $Cu(OH)Cl.Cu(OH)_2$] and gypsum (approx. 7%; $CaSO_4.2H_2O$; which was assumed to have come from its pot). Our current view of how this sample was formed is that it was originally a mixture of malachite and cerussite (either man-made or found mineralogically), which was later subjected to an influx of sea-water or salt spray (to give, over time, the atacamite and cumengeite).

The previously unpublished sample, H234, was found to have galena as its major component (at approx. 91%; using XRPD at Newcastle University). It was black in colour, found at Qurneh (Upper Egypt) and dated (at the excavation site) to the 18th dynasty.

The LIRs of these five samples were determined at NIGL using a multi-collector inductively coupled plasma mass spectrometer (MC-ICP-MS).[21] The values of three LIRs for these five samples (given in the sample order E3, E13, M6, H234 and H235) are given below.

For $Pb^{208/206}$: 2.120, 2.116, 2.009, 2.009 and 2.010.

For $Pb^{207/206}$: 0.862, 0.860, 0.803, 0.803 and 0.804.

For $Pb^{206/204}$: 18.135, 18.184, 19.495, 19.499 and 19.467.

Where the errors (as % 2 standard deviations) vary between 0.002 and 0.010.

Discussion and Conclusions

In the first half of the 20th century the source(s) of the galena used by the ancient Egyptians was variously thought to be located across the Levant and Middle East. It was initially stated that it was 'probably brought from Syria';[6] but, a few decades later, came the statement 'There can be little doubt that most, if not all, the lead and galena used in Egypt until about the 18th dynasty was of local origin'.[6] Tribute lists in historical texts indicated various external sources for galena. Such places as the ancient Levantine countries of Retenu (Canaan/Lebanon), Isy (Cyprus) and Naharin (N Syria);[5] plus, Mesopotamia and Punt (variously thought to be Eritrea/Ethiopia/Somalia/Yemen) were also mentioned.[6] However, these listed sources of galena may only have represented a small percentage of all the galena used, and were possibly just the preferred sources for important users.

More recently the LIA technique has been utilised on hundreds of lead-containing artifacts, and on a more limited number of galena ore samples from Egyptian mines. It has become clear that most of the galena used in ancient Egypt did in fact come from within its own borders.[8,9] Specifically, for the 53 galena-containing kohls (dated from the predynastic to 18th dynasty), it was found that 44 (83%) could be provenanced to the (Red Sea coast) mine of Gebel ('Gabal') el Zeit (approx. 27.9° N 33.5° E) mine using LIR's.[5,6,7,9,22] Various other Red Sea coastal mines, plus possibly some external sources, were used initially (i.e. pre-/proto-/early dynastic);6,7 but by the 12th dynasty (i.e. 1985–1795 BC[16]) almost all the galena used in kohls was coming from the Gebel el Zeit mine.

Thus it is not unexpected that the LIRs of our three ancient Egyptian samples, which date to the Middle and New Kingdoms, also match those of this mine. However, as far as we are aware *only* galena was systematically mined at this site. Cerussite has been found at some of the other Red Sea coastal mines as a minor lead ore,[6] and so could have been found at the Gebel el Zeit mine in Pharaonic times. As previously stated, we had assumed for sample H235 that cerussite had been added (deliberately rather than mineralogically) to the original malachite as a white diluent.[20] It is possible, though we feel unlikely, that alternatively (black) galena was added to the malachite as a *darkening* colourant. Also regarded as unlikely is the possibility that galena could have been accidentally spilt into our pot at some stage in its past (i.e. before it came into contact with sea-water/salt spray). Either additive would eventually, when subjected to continuous contact with a solution of sodium chloride and in the presence of malachite, have produced the Cu-Pb mineral cumengeite. Also, as mentioned previously, there is the (unlikely) possibility of an as yet undiscovered Pb-Cu/Pb mine which is geologically very similar to the Gebel el Zeit mine. Here malachite and cerussite/galena, or just cerussite/galena, would occur with LIRs that would be very close to those found for the above mine.

The two modern-day Egyptian kohl samples (E3 and E13) have LIR values that are closest to those from lead mines in Italy (i.e. Sardinia/Tuscany) and in Spain.[1,23] Both countries do still mine and export galena, but it has not been possible to discover from available import/export records if in fact modern-day Egypt does import lead ore from either of these countries. The only other modern-day kohls that have had LIR data published are 14 kohls used in Arar (a town in northern Saudi Arabia). Unfortunately only one LIR was given (i.e. $Pb^{206/207}$); where the inverse LIR (i.e. $Pb^{207/206}$) range was calculated to be (by us) 0.851 – 0.866 for 13 samples (the additional sample had an LIR of 0.843), and where six of these 13 samples had values at (or very close to) 0.860.[24] These numbers indicate that most of these kohls contained lead from a similar geological source to that found for our two modern-day Egyptian kohls that is consistent with an Italian and/or Spanish origin.

The LIA technique is extremely useful for showing *negative* results; that is showing where the lead in an artifact does *not* come from and/or that several similar lead-containing objects have differing provenances.14 This usage is applicable in this study. It has shown that the galena in the modern-day Egyptian kohls does *not* come from any known source within Egypt, and that its provenance is *not* the same as the galena in our ancient Egyptian kohls.

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Thus this preliminary small-scale study of the provenance of the lead (galena) in old and new Egyptian eye cosmetics has shown the following:

A) The lead sources, used in kohls of Egypt past and present, are **not** the same.

B) The source of the lead used in the three ancient Egyptian kohls studied here is likely to have been the (expected) Red Sea coastal mine of Gebel el Zeit.

C) The source of the galena used in our two modern-day Egyptian kohls is comparable in isotope composition to galena from Sardinia/Tuscany, and parts of Spain.

D) The lead isotope composition of the *green* eye cosmetic (H235) suggests that cerussite was found in the past at the Gebel el Zeit (galena) mine. We feel that it is more likely that (white) cerussite, rather than (black) galena, was added to the original (green) malachite of this sample.

There is the possibility that some of the above conclusions could be changed if as yet undiscovered mines, which are geologically (very) similar to the mines mentioned above, are found in the future. However, we regard this possibility as somewhat unlikely and so feel that the above conclusions have both significance and validity.

Acknowledgements

We would like to thank the Bristol (UK) and Royal Albert Memorial (Exeter, UK) museums for generously allowing us access to their Egyptology collections (for samples H234/5 and M6 respectively). Also, to the Chemical and Materials Analysis Unit (University of Newcastle, UK) for the XRPD data on sample H234; and to Dr Jane Evans (British Geological Survey, Keyworth) for help with the interpretation of the LIA data.

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Endnotes and References

1. One such data-base (used here), listing LIRs from various lead-containing ores found in several Mediterranean countries that were published between 1967 and 1997, can be found at the web-site: www.brettscaife.net/lead/data/index.html

2. For example, see: Brill RH and Wampler JM. Isotope Studies of Ancient Lead. *Am J Arch* 1967; 71(1): 63-77.

3. Mason RB, Farquhar RM and Smith PE. Lead-Isotope Analysis of Islamic Glazes: An Exploratory Study. *Muqarnas* 1992; 9: 67-71.

4. Wolf S, Stos S, Mason R et al. Lead Isotope Analyses of Islamic Pottery Glazes from Fustat, Egypt. *Archaeometry* 2003; 45(3): 405-420.

5. Brill RH, Barnes IL and Adams B. Lead Isotopes in some Ancient Egyptian Objects. In: Bishay A (ed). *Recent Advances in the Science and Technology of Materials,* Vol. 3. New York: Plenum Publishing Corporation, 1974: 9-27.

6. Stos-Gale ZA and Gale NH. Sources of Galena, Lead and Silver in Predynastic Egypt. *Rev d'Arch* 1981; 5: 285-295.

7. Hassan AA and Hassan FA. Source of Galena in Predynastic Egypt at Nagada. *Archaeometry* 1981; 23(1): 77-82.

8. Shortland AJ, Nicholson PT and Jackson CM. Lead Isotopic Analysis of Eighteenth-Dynasty Egyptian Eyepaints and Lead Antimonate Colourants. *Archaeometry* 2000; 42(1): 153-157.

9. Shortland AJ. Application of Lead Isotope Analysis to a Wide Range of Late Bronze Age Egyptian Materials. *Archaeometry* 2006; 48(4): 657-669.

10. Caron CM, Alvarado C, Alexakos P et al. Fatal Pediatric Lead Poisoning–New Hampshire, 2000. *MMWR Weekly* 2001; 50(22): 457-459.

11. Gulson B. Stable lead isotopes in environmental health with emphasis on human investigations. *Sci Total Envir* 2008; 400(1-3): 75-92.

12. Komarek M, Ettler V, Chrastny V et al. Lead Isotopes in Environmental Sciences: A review. *Envir Int* 2008; 34(4): 562-577.

13. Hauptmann A, Begemann F and Schmitt-Strecker S. Objects from Arad: Their Composition and Provenance. *Bull Am Sch Or Res* 1999; 314: 1-17.

14. Knapp AB. Archaeology, Science-Based Archaeology and the Mediterranean Bronze Age Metals Trade. *Eur J Arch* 2000; 3(1): 31-56.

15. Ponting M, Evans JA and Pashley V. Fingerprinting of Roman Mints using Laser-Ablation MC-ICP-MS Lead Isotope Analysis. *Archaeometry* 2003; 45(4): 591-597.

16. Shaw I and Nicholson PT. *British Museum Dictionary of Ancient Egypt.* London: British Museum Press, 2rd edn, 2008: 350.

17. Hardy AD, Walton RI, Vaishnav R et al. Egyptian Eye Cosmetics ("Kohls"): Past and Present. In: Bradley D and Creagh D (eds). *Physical Techniques in the Study of Art, Archaeology and Cultural Heritage.* Netherlands: Elsevier Publishing, 2006: 173-203; and references therein. Also, this book chapter gives details of the two analytical techniques (XRPD and QEMSCAN) mentioned in this article.

18. Hardy AD, Walton RI and Vaishnav R. Composition of eye cosmetics (kohls) used in Cairo. *Int J Envir Health Res* 2004; 14(1): 83-91. Our samples E3 and E13 are listed here as samples '3' and '5' respectively.

19. Two size fractions of the M6 sample were analysed using the QEMSCAN technique. The first value (91.5%) refers to particles of between 1 and 25 microns, and the second value (92.3%) refers to particles of between 25 and 200 microns in size. Also, unfortunately, when this technique is used in energy dispersive mode (as here) it is

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not possible to distinguish between the various lead compounds present. The lead compounds given as being possibly present are the result of using previous elemental analysis data. For details, see reference 17.
20. Hardy A and Rollinson G. Green Eye Cosmetics of Antiquity. *Pharm Hist (Lond)* 2009; 39(1): 2-7.
21. For further information on MC-ICP-MS, see: Weeks L, Keall E, Pashley V et al. Lead Isotope Analyses of Bronze Age Copper-Base Artefacts from Al-Midamman, Yemen: towards the identification of an indigenous metal production and exchange system in the southern Red Sea Region. *Archaeometry* (published online 1st Sept. 2008).
22. The (LIR) ranges for galena ore from Egypt are surprisingly large. For $Pb^{208/206}$ and $Pb^{207/206}$ the values are (currently) 1.98–2.14 and 0.756–0.899 respectively. However, these can be broken down into six groups – which vary in size from one to four mine sites. The same LIR ranges for the Gebel el Zeit mine (in fact consisting of two known, and sampled, mine sites that are a few km apart) are: 1.98– 2.02 and 0.785 – 0.808. It is assumed that this range covers the entire region of, *and between*, the two known mine sites. Currently only two galena samples from each of the two mine sites have had their LIRs determined.
23. The $Pb^{208/206}$ and $Pb^{207/206}$ ranges (all the former values given first) for the mines of Sardinia, Tuscany and Spain are: 2.09–2.13, 2.08–2.10, 2.06– 2.11; 0.846 –0.876, 0.836– 0.856 and 0.832–0.860. These ranges are based on the LIRs of lead-based ores *only*, as found in reference 1.
24. Al-Saleh IA, Fellows C, Delves T et al. Identification of sources of lead exposure among children in Arar, Saudi Arabia. *Ann Clin Biochem* 1993; 30: 142-145.

Continued from p. 17

Review

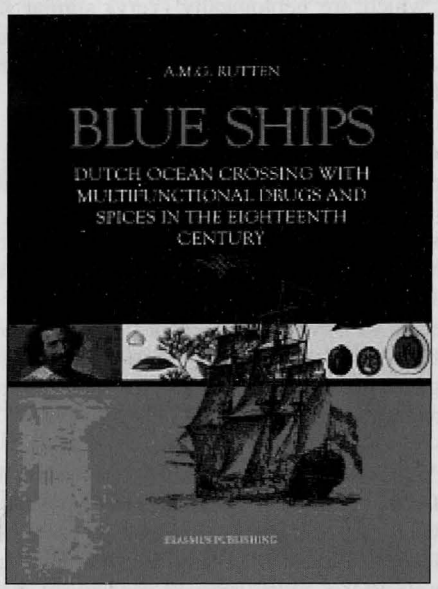
pharmacy it successfully makes linkages with other histories; the importance of overseas enterprises for the development of Europe (sometimes referred to as colonial history); the transformations seen in the rich material culture of the period; and with histories of material things more generally.

Indigo was just one of a very long list of so-called multi-functional drugs. Others discussed in detail include saffron and mustard. Saffron originally came from Northern India in the fifth century, later being grown mainly in Spain, and eventually in Saffron Walden in England. It was not only used as a spice and colorant in the kitchen, but was also highly valued as a medicine. Mustard too was found to be invaluable in medicine; in the sixth century BC Pythagoras used mustard as a medicine against scorpion stings; and a hundred years later Hippocrates recommended its use in combination with other drugs and in compresses.

During the period of Rutten's investigation the four main multifunctional drugs were pepper, cinnamon, clove and ginger, all of which were used as medicaments as well as spices and herbs. Rutten draws together some intriguing evidence on the excessive use of spices. For example, in the fifteenth century the Duke of Stafford, Humphrey Stafford, organised a party for his family and friends. No less than 316 pounds of pepper, 194 pounds of ginger and other spices including nutmeg were consumed, or two pounds of spices per person.

The psychoactive effects of several spices including nutmeg were well-known at the time. Myristin and other compounds in nutmeg are converted into amphetamine-like substances; excessive use led to auditory and visual hallucinations. In fact nutmeg was deliberately distributed on board the slave ships of the Dutch East India Company, which led to euphoria and gaiety amongst the slaves.

Rutten's account of multifunctional drugs extends to those of mineral and animal origin that appear in the Amsterdam Pharmacopoeia. Mineral ones include borax, red lead and saltpetre. The medicinal uses of several gemstones are discussed, including hematite,



lapis, ruby and sapphire. Those of other origin include amber, used both as a detoxifier and as a perfume, and pumice, used for gastric disorders and as an abrasive. Coral red was used for the treatment of dysentery as well as being a gemstone. Pearl was used for the treatment of heartburn as well as its use in jewellery.

The book is well-referenced and there is a comprehensive bibliography and list of sources. Disappointingly however there is no index. The book will nevertheless be a useful addition to the shelves of those interested in the sources of medicines originating from exotic herbs and spices and their movement across the oceans of the world.

Stuart Anderson

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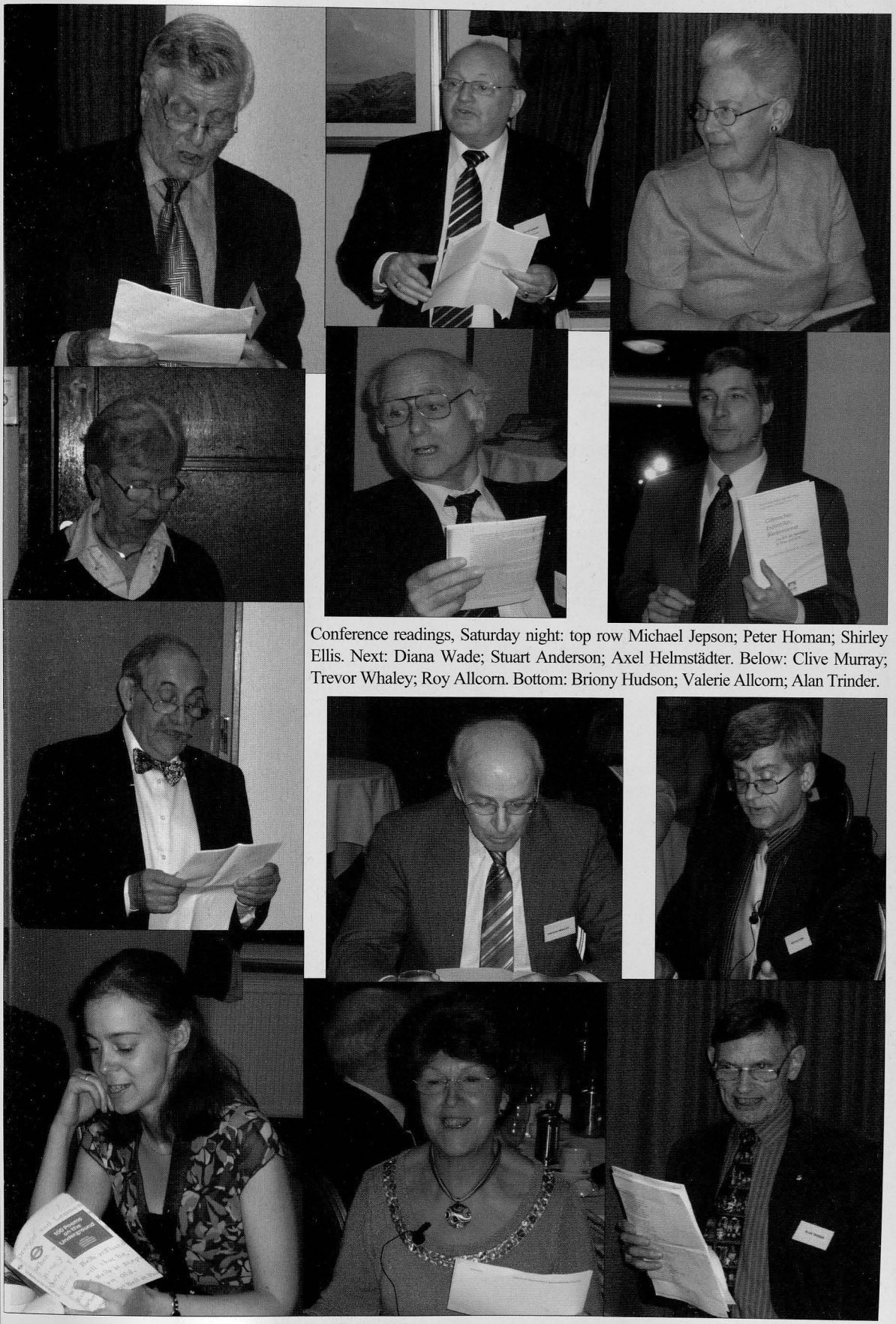

Conference readings, Saturday night: top row Michael Jepson; Peter Homan; Shirley Ellis. Next: Diana Wade; Stuart Anderson; Axel Helmstädter. Below: Clive Murray; Trevor Whaley; Roy Allcorn. Bottom: Briony Hudson; Valerie Allcorn; Alan Trinder.

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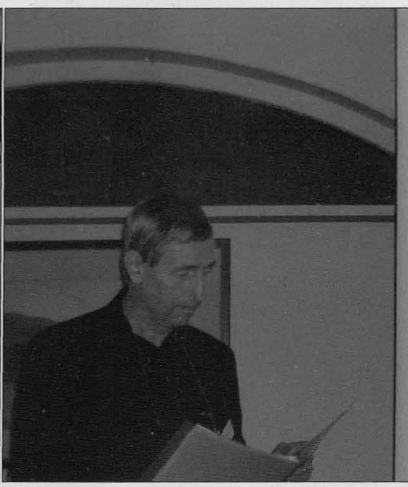
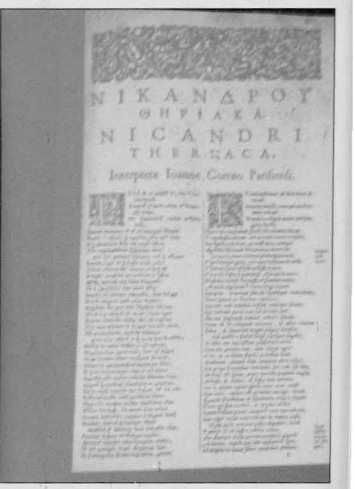
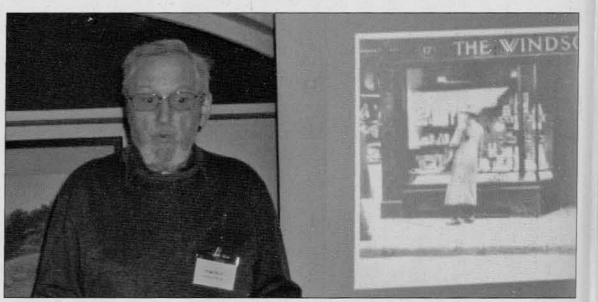
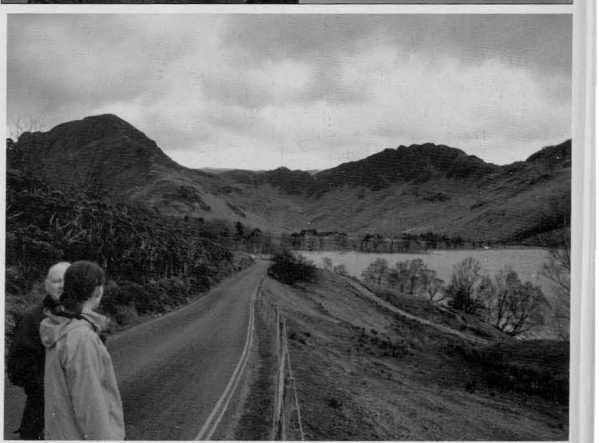



BSHPSpring Conference at Castle Inn Hotel, Bassenthwaite, Cumbria 27-29 March 2009

Some speakers left from top: William Jones producing electricity; Peter Worling; part of audience. Right from top: Renzo Console; Roger Mills.





Saturday afternoon: A short visit to Haystacks and Buttermere.

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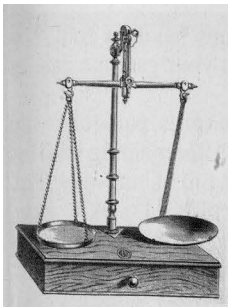

PHARMACEUTICAL HISTORIAN

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Diary

Wednesday 23 September 2009
'Disaster Medicine' by Major General Alan Hawley. Lambeth 6.30
Wednesday 4 November 2009
'Nature's Alchemist: John Parkinson, herbalist to Charles I' by Anna Parkinson. Lambeth 6.30
Future Dates 2010
17 February, 19 May, 29 September at Lambeth.
BSHP Annual Spring Conference 26-28 March 2010, Best Western Diplomat Hotel, Llanelli.
Theme: **Pharmacy Practice and Practitioners**.
Friday evening: speakers on the role of pharmacy museums. Saturday morning: Short papers are invited on pioneers of any aspect of pharmacy practice or the techniques or medicines they introduced. Saturday afternoon: A visit to the Botanic Garden of Wales. Sunday: After AGM, we plan to hold a discussion on pharmacy practice 30/40 years ago, led by four speakers from community, independent and multiple, hospital and industrial practice. Think back to what you did during your FIRST YEAR of practice as a pharmacist and make a few notes to contribute to the discussion. We hope to record the discussion but please leave your dated (anonymous if you wish) notes with the organiser for a detailed report for the *Historian.*
Following the degree of humour displayed by the choice of poetry last year it has been suggested that we liven up Saturday evening by each telling our favourite pharmaceutical or medical joke. I hope laughter aids digestion.
Offers of papers should be sent, with provisional title, by November 30th 2009 to Shirley Ellis at 1 Willow Way, Bottisham, Cambridge CB25 9BS or by e-mail to shirleyellis@shirlellis.plus.com
Full details of the conference and application forms will be sent out in January 2010.

Taking Care of Oneself in the Twentieth Century: A Postcard Story

John K Crellin
Newfoundland, Canada

This article comprises excerpts from an evening lecture (6 May 2009) to BSHP and RPSGB. It began by outlining how postcards, as social history, can amplify the written record of twentieth-century self-care. Particularly relevant are cards, when the context of health care at the time is provided, that (i) depict self-treatments; (ii) advertise medicines; (iii) show pharmacies; (iv) caricature physicians prescribing home remedies; and (v) offer social commentary and health promotion for the last two to three decades of the century.

The excerpts offer an account of the shift from the commonplace usage of home remedies (prepared in the kitchen or taken to the pharmacy for compounding) to over-the-counter medicines made in pharmacies, or by wholesalers and large manufacturers. British and North American cards illustrate common aspects of the shift such as: (a) types of household remedies, (b) the role of pharmacies, and (c) the influence of physicians. I suggest that the shift to over-the-counter medicines was uneven and protracted, and that it serves as an example in the history of therapy of the persistence of so-called 'old-fashioned' or 'useless' treatments. Only a small selection of nearly ninety cards shown in the talk can be illustrated below.

Household medicines for the common cold

Since much postcard humour centres on the common cold and its symptoms, it is a particularly useful ailment to glimpse the range of popular beliefs and treatments recorded on cards. From the first half of the twentieth century, cards reveal a veritable shopping list of popular household medicines also referred to as home, family, or nowadays often folk medicines; included are foot baths (with and without mustard), mustard plasters, ice packs to the head, gargles, caudles and whiskey, as well as some over-the-counter remedies that became viewed as family medicines by dint of popularity.

Colds, too, were certainly a condition for which an uplift of spirits was always welcome – an important health-care role for many cards, not only from the humour of a card, but also for the sender's message, often

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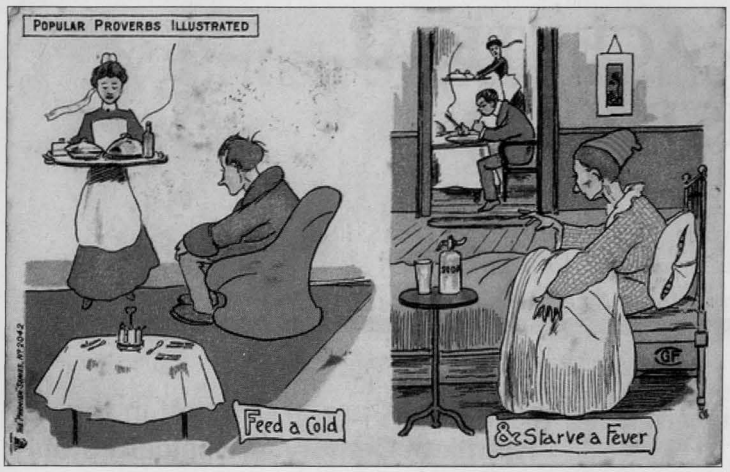

Figure 1

words of encouragement. On a British card (Fig. 1, mailed in 1904) of drawings to illustrate the health maxim 'Feed a cold & starve a fever,' Auntie May wrote: 'Sorry to hear Mother & you are sadly. Make haste & get better. What do you think of this p.c. you must follow the advice but don't get too pat.' Another popular belief alluded to on cards is the danger of being out in the cold or a draught ('catching' a cold). The sender of a card that illustrates the saying 'Prevention is better than Cure' added, with tongue- in-cheek humour:

Figure 2

'I don't wonder the Baby having a cold. You forget when you open your gate the gale of wind you make.'

A common scene on cards, particularly up to World War II, is a sufferer sitting with his or her feet soaking in a tub of hot water. Fig. 2, sent in 1903, depicts a sickly man, enrobed in a dressing gown, being given a dose of medicine by a fashionably dressed, younger woman. The sender's hand-written caption, 'After the fair,' maybe hints at retribution for some lapse in behaviour, or maybe getting just getting damp and cold.

Footbaths had seemingly grown in popularity during the second half of the nineteenth century for reasons I will not consider here, apart from noting that an apparently long history of usage encouraged confidence in effectiveness. A 1904 popular home medicine book actually quoted, albeit second-hand, a 'plan for the cure of colds [that] has been in use since 1340'; this included not only soaking the feet, but additionally wrapping flannel around the head, a practice also shown on 'feet-in-the-tub' cards. Other such cards show the sufferer with a red scarf (maybe traditional red flannel) around the neck to help ease a sore throat. Perhaps one of countless gargles had also been tried, the basis of a joke on a card from about 1945: a sailor tells a doctor: "Wot! Me gargle wiv salt and water for a sore throat, wot do you think I've been doin' the last four times I was torpedoed?" Senders, too, might indicate a favourite gargle as on a card mailed in 1925: 'Guess I will have to make some iodine and gargle.'

Medications, commonly mustard as indicated on cards, might be added to a footbath. Fig. 3, posted in 1910, shows an apparently happy soul, who also relieved his suffering feet in a mustard bath and daydreams of an attractive 'French nurse'. Postcard recognition of mustard baths continued until around the 1950s when they were still being recommended for colds as they are today among advocates of 'natural' treatments. However, they also doubled up as a treatment for tired feet as caricatured on a US World War II card showing a soldier with feet soaking in a tub. The caption, 'I gotta use mustard on these dogs, too!' plays on 'dogs' as slang for feet, and mustard for the hot dogs, which were then a relatively recent popularised fast food.

Another home practice for a chesty cold – applying a plaster to the chest, especially a mustard plaster – attracted the eye of postcard artists as an opportunity to depict an attractive woman treating a suffering male patient. A mustard plaster, sometimes home-made, was just one treatment designed to produce 'counter-' or skin-irritation; it occasioned the joke on a British card mailed in 1910, which shows mustard spread thickly on a plaster with the caption, 'There's always an opening for a smart man. Here's a mustard plaster, it will make you smart.' (Hopefully blisters from too much mustard were avoided.)

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Figure 3

Less drastic than mustard plasters for colds were 'rubs' – rubbing a medicament on the chest to ease 'chestiness.' While traditional household remedies such as goose grease remained fairly well known, over-the-counter preparations such as Vicks VapoRub (coming into popularity after World War I) became an alternative 'family remedy' in many homes. Rubbing the chest prompted ribald postcards as one from the 1940s, a working class scene in a British pub. A female customer says to the buxom barwoman:

> Wonderful for the old bronchitis – get your old man to give your chest a good rub when he's got 'arf a day to spare.

I leave aside such other cold treatments depicted on cards as ice-caps and ice blocks (also for hangovers), lemon and caudle, to mention the ever-popular whiskey. It captured much postcard attention. One example, mailed in the US in 1910, depicts a sufferer in bed with a headache, maybe from a cold, but just as likely a hangover. He is offered, from opposite sides of his bed, 'Whisky Sour' and 'Bromo-Seltzer.' The caption reads, 'Now what would YOU do in a case like this?' while the sender's handwritten note underscored the dilemma: 'Did anything like this ever happen to you in the country. I hope not.' The choice between Whisky Sour and Bromo-Seltzer was obvious to many, although the latter was a singularly successful product. Whisky (neat or mixed) remains a well-known home remedy, one that doctors have recommended on occasions. On a British humorous card mailed in 1931 (Fig. 4), a doctor asks, "Are you taking the Pills and Whisky regularly as I ordered?" A red-nosed patient replies: "Well I may be three months behind with the pills, but I'm six months ahead with the whisky." Another card, this from the US, shows a patient, comfortable with feet in a footbath and holding a bottle of whisky, is captioned: 'Medical Science says: Whisky can't cure the common cold! Well neither can Medical Science!'

Shifts to pharmacists' and doctors' medicines

The twentieth-century shift away from home-made treatments can be described as a result of a general assault on them as being 'old-fashioned,' an assault led from pharmacies with their counter-prescribing and sale of remedies made within a pharmacy, by wholesalers, or by the increasingly powerful pharmaceutical companies. In offering comment on the role of pharmacy, I want to emphasise two points. One is that differences in preparations must not hide the fact that, with common ingredients in many of them and differing attitudes to new medicines among patients, pharmacists and physicians, the shift away from common household remedies was, as already mentioned, uneven and inconsistent. Moreover, it can be argued that the diversity of pharmacies, with their central role in the shift, was a contributing factor to the unevenness and inconsistency.

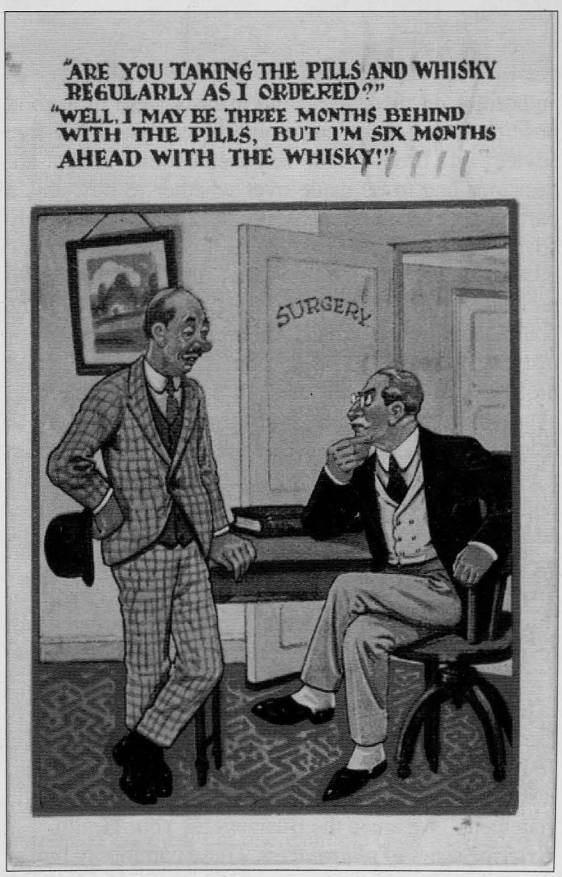

Figure 4

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Secondly, in considering 'pharmacy' cards as a resource for self-care, they might be assumed to merely support written sources of information and published photographs. However, postcards can add to such other historical records as published photographs in journal articles and books that were designed to demonstrate ideal professional and eye-catching window displays. Both view and humorous cards of street scenes and of pharmacy shop fronts and interiors, as well as cards used by a pharmacy for advertising and public relations, are invaluable in adding insights into the diversity of pharmacies, the intensity of competition, public relations strategies, and professional/commercial tensions within pharmacy as a whole, all of which could, in one way or another, affect how customers viewed advice on what medicines to choose.

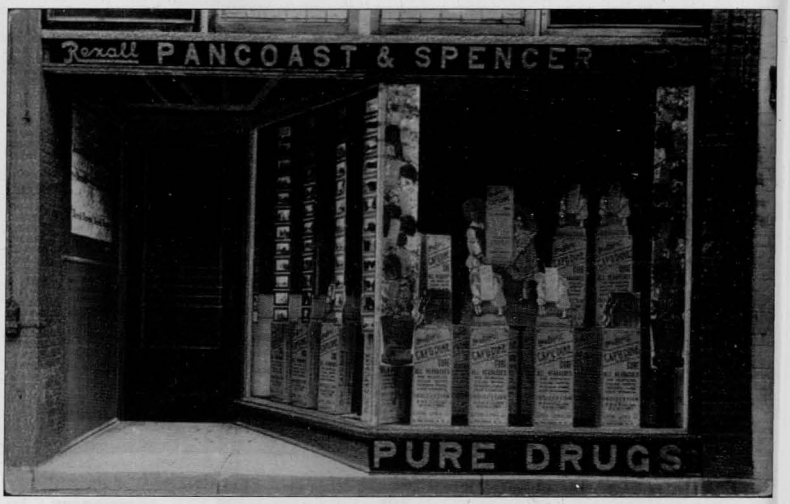

Figure 5

Pharmacies

As is well known, pharmacies had an important 'open-door' role in health care from their prominent locations in small and large communities. Although many remedies were always available from general and department stores, pharmacies had larger selections. Moreover, during the early years of the century, various pieces of legislation helped the public to accept pharmacists, in contrast to general merchants, as authorities on medicines. Pharmacists were in a good position to influence customers by virtue of the free advice on health and self-medication. After all, decisions had to be made over whether to buy, say, a particular headache remedy because it was intensively advertised at the time, maybe in a pharmacy window display, or because the price was right. Or, maybe, to purchase a pharmacist's own preparation. Clearly, pharmacists faced ethical dilemmas every day. For instance, whether to sell products that yielded good profits, even it they felt them to be less effective than alternatives with lower profit margins; or even to recommend lemon juice to help with a cold rather than a product from their shelves. Professional standards undoubtedly varied from one pharmacy to another adding further uncertainty for, say, the conscientious mother wondering what was best for an ill child.

Street scenes. Even cards of a small town's 'main' or 'high' street with an incidental view of a pharmacy can reveal something of the commercial/professional scene. They may show that the advertising of premises extended to using the building itself, as on a 1905 UK example of Ipswich Street, Stowmarket, while a card (c. 1910) of a small Texan town shows a drugstore that, instead of a window display, has the bill-board style statement: 'We are in the Business for Your Health.'

Exterior views of pharmacies. These commonly hint at the very competitive commercial pressures by showing (i) windows crammed with merchandise, not all related to health care, and (ii) evidence of price-cutting. In Britain, for instance, 'window display' postcards recorded non-pharmaceutical business activities, such as wines and spirits in a Troughton pharmacy. The window to the left of the central door displayed a hodgepodge of medicines along with such placard advertisements as 'Frog in your throat 7d', while the right window has gin, wines, etc. This is in sharp contrast to the non-commercial, professional-looking London pharmacy of Savory & Moore captured on a number of early cards. A particularly interesting facet of commercialism is seen in window displays devoted to promotion of a single product, thereby raising questions about undue sales pressure on the public. For instance, on a 1910 US card (Fig. 5), the pharmacy of Pancoast & Spencer in Ohio – a Christmas Greetings card – displays only Capudine, a liquid medicine produced by the Capudine Chemical Company in North Carolina and recommended for the 'relief of pain and discomforts of Headaches & Neuralgia,' and 'Aching Discomforts Due to Head Colds.' The only other identifiable item in the view of Pancoast & Spencer is postcards, and given this account, it is appropriate to notice, as an aside, that one sideline of many pharmacies was the sale of postcards. Leaving aside large companies like 'Boots Cash Chemists,' and their extensive range of view cards, Fig. 6 shows a card published (c. 1920) by the English pharmacy in Khartoum, one of a series documenting natives and their customs.

The sense of commercialism among single-owner pharmacies paled in comparison with that generated with the development of pharmacy chain stores that emerged in Britain with Boots, and, a little later, in the US with such names as Louis Leggett and Charles Walgreen. The commercialism, of course, extended well beyond the supply of medicines as indicated by postcard advertising. One showing 'Walgreen's' in Miami, mailed in 1953, had the following statement printed on the back: 'One of the most complete drug-

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department stores in the entire country, it has a basement in which there is a beautiful Tea Room. On the double deck balcony, a Cafeteria. Of the 500 Walgreen stores, this is the most elaborate.'

Many single-owner pharmacies were necessarily entrepreneurial and some clearly utilised the image of professionalism in dispensing medicines to promote non-medicinal products as of sound quality and appropriate price.

The Model Drug Company in Missouri, in appealing advertising, used the popular comic character Buster Brown on a 'calendar' card for the month of November 1912; it had the following testimonial from Buster:

Resolved
That we always keep both eyes open
when filling prescriptions.
and make no mistakes. You'll
not miss it when you buy your
drugs and toilet articles where I buy mine.
Buster Brown

Many cards hint at professional/commercial tension within retail pharmacy, but most explicit are cards from the limited number of pharmacies in the US that limited their services to medicines and items strictly related to health care. Thus a 1960s card stated: 'Where Pharmacy is a Profession. Not a sideline.' Just how such sentiments impacted on public attitudes toward pharmacy and over-the-counter medicines is by no means clear, but likely added cautions in the minds of some people.

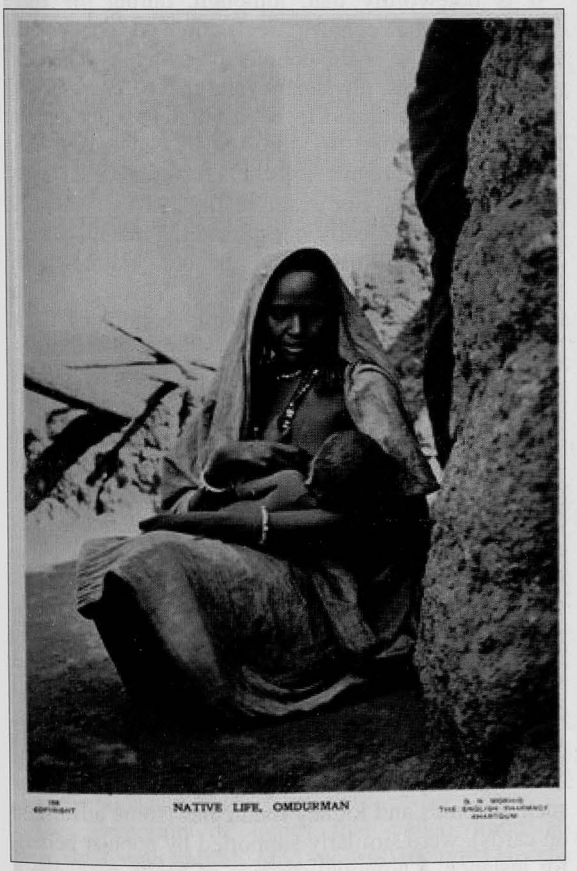

Figure 6

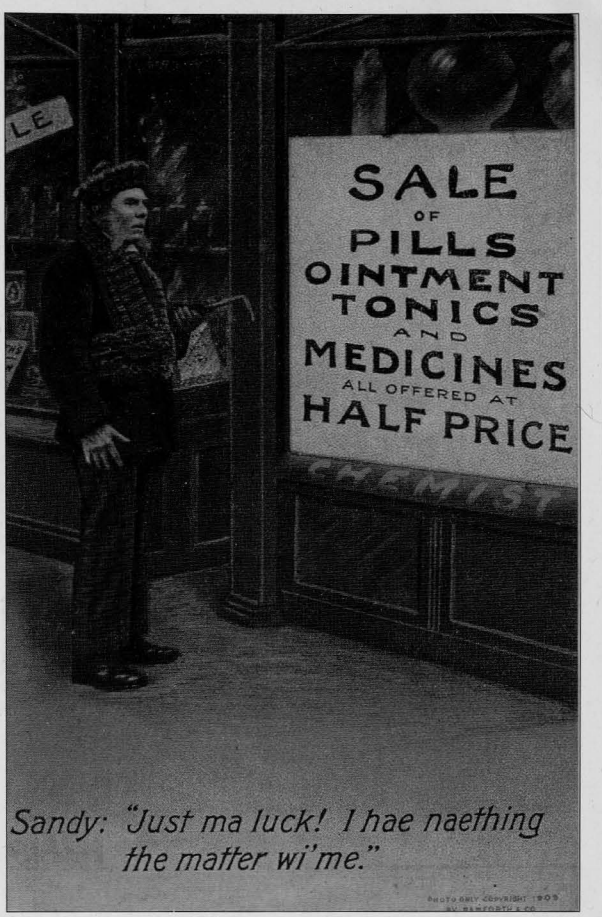

Figure 7

Perhaps the most clear-cut evidence of commercial competition recorded on cards is price-cutting, more so in the US where efforts to establish resale price maintenance did not have the same success as in Britain. Interestingly, a British pharmacy features on a humorous card published and mailed (1909) in the US, a time when resale price maintenance of medicines was still emerging in the UK (Fig. 7).

It shows a Scotsman looking at a large notice in the pharmacy window: 'SALE OF PILLS OINTMENT TONICS AND MEDICINES ALL OFFERED AT HALF PRICE.' The response: "Just ma luck! I hae naething the matter wi'me."

Interior views. Any doubts a customer may have had about a cluttered pharmacy, overt commercialism, even the ethics of a pharmacist, could be offset by the welcome and service offered to a customer. A good number of humorous, rather than view, cards hint that customers felt comfortable in 'dropping in' and asking for free advice in a friendly, non-threatening atmosphere. Such an atmosphere is hinted at on British cards up to around World War II that feature little boys asking questions of a perplexed chemist. On one example (Fig. 8), mailed in 1945, the exchange goes:

"Two Penn'worth o' cinema pills."

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Figure 8

"What d'yer mean 'cinema' pills"

"You know – Movies!"

And on cards (mailed 1918 and 1926):

(i) "Giv' us a penn'worth of sticking plaster. Mothers' met the lidy wot pinched our door-mat."

And (ii) Titled 'Crosswords,' a little boy asks, "Please Sir, What have you got in your stomach?"

There is, too, an interesting series of humorous photograph cards that includes one about hair falling out:

[Customer:] "My hair keeps falling out. Can't you give me something to keep it in?"

[Chemist offering a cardboard box]: "Yes Sir – How will this do."

There would be no joke if the pharmacist had offered to sell one of the countless number of baldness remedies and hair preparations likely to be in stock.

It was easier for pharmacies in the US to become something of an open store, almost a community centre in consequence of the popular soda fountain and, in many, cafeterias. Postcard senders of a picture of a pharmacy might add their own accolade. For instance, a 1909 card of the 'Drug Store' in South Essex, Massachusetts, had the handwritten note, 'The best store in Essex.' And, a 1948 card of the Rhinebeck pharmacy in New York State: 'This is one of our Drug Stores ... the one we stop in after the movies for sodas and sundaes.'

Photograph cards of the interior of pharmacies – relatively few in Britain compared with the US – do in fact suggest a more professional atmosphere than can be judged from window displays. An interior view of the J. Hinton Lake Edwardian pharmacy in Britain, with a lady waiting for a prescription that is being dispensed, suggests an elegance to the fittings and furniture. Although seemingly not overcrowded with stock, the advertising placards still testify to the constant need to promote products. However attractive the interior views of US drugstores, the commercial ambience is often evident. For instance, a view of the handsome interior of 'North Station Drug Store in Boston' (with an inset of the Dining Room) mentions, on the card's border: 'Cut Prices'. The latter is even more clearly stated on a 1940s view of a Florida drugstore: 'Florida Cut Price No. 1' with the printed information on the back that explains the black American staff: 'It is the only Negro Pharmacy in East Jacksonville.'

Some proprietary medicines

Enough has been said to indicate that making decisions on which medicine to purchase was not always easy. To fully appreciate this, the massive advertising in newspapers and elsewhere of proprietary medicines needs to be recognised, albeit beyond the scope of this brief account. A sense of it, however, comes from advertising cards, although they were only a small part of any manufacturer's advertising budget.

It is noteworthy that, although, during the early decades of the century, legislation to control the advertising of over-the-counter preparations tempered numerous abuses, physicians (and maybe pharmacists) in particular continued to be suspicious about claims. This even applied to the widely advertised and successful, Beecham's Pills in consequence of early negative publicity. For example, the BMA's 1909 book *Secret Remedies* clearly questioned the manufacturer's claim that the Pills could benefit around thirty conditions – from constipation to 'sickness of the stomach,' 'scurvy and scorbutic conditions,' and 'kidney and urinary disorders.'

Yet Beecham's Pills flourished, likely aided by innumerable advertising postcards directed to the public. Despite negative or luke-warm attitudes toward the Pills, purchasers who did read the small-print information about them might well have perceived the conditions listed as a logical consequence of constipation. In other words, some could see a logic to a cascade of problems arising from an initial cause. This was encouraged by concepts (promoted by some physicians) such as 'autointoxication,' namely explaining a range of health problems said to be due to absorption of toxins arising from stasis and putrefaction of intestinal contents; the concept remained in popular health discourse throughout the first half of the century, indeed to the present. Other preparations on the market such as tonics and kidney medicines (some advertised on cards), were similarly supported by popular beliefs, for instance, a potential cascade of health problems if

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bad blood was not treated by a blood purifier.

Thus it was that many over-the counter medicines found ready public credibility as they fitted into existing popular health concepts; although this contributed to the persistence of, say, blood purifiers, it has to be said that over-the-counter cold remedies were easier to administer than, say, a mustard foot bath. What manufacturers had to do was to try to establish and maintain brand loyalty. Any consideration of the advertising strategies behind this needs to consider postcards; various companies capitalised on their convenient size and appeal with, for instance, cartoon humour, scenes of large factories (with all the implications of success and stability), and 'testimonials' not in quoted words, but through associating the product with a photograph of a celebrity, often an actress, or linking the product name to a symbol of power and influence like a parliamentary building or university.

Figure 9

One particular group of medicines, namely 'tonics', illustrate all such approaches while also reflecting a shift in a type of treatment that, in the early decades of the century, had a particular reputation for dealing with a run-down feeling and general tiredness. One group of tonics, 'restorative' or 'medicinal' alcoholic beverages – family medicines for adults – were advocated by many physicians and pharmacists as nourishing and 'excellent tonics' in recovering from illness. Strong beers – ales and stouts – were to the forefront with postcards as part of advertising strategies. For example, Burke's Stout ('As Good for the Well and Strong as for the Convalescent,'), and, Guiness's Extra Stout ('Guiness is Good for You at Dundee.')

Even more clearly 'medicinal' were 'tonic wines,' commonly fortified with herbs and, less often, meat extracts, some widely promoted on cards, most notably Wincarnis. Other noteworthy features of the medicinal alcohol story centre on the temperance and prohibition movements both of which, directly and indirectly, added to some people's reliance on physicians and pharmacists. This cannot be considered here except to give an example from the US where national prohibition (1919-1933) allowed physicians to prescribe liquor for medicinal purposes and pharmacists to dispense it. However, amid requirements of special permits and limited quantities, abuses were well known as noted by postcard artists. One example shows a prescription for 'Spirits Fermenti' with the directions, 'Take glassful with water whenever necessary,' signed 'U. Fillemupagain M.D.'

The promotion of tonics that called upon an association with stability (and success) included Hood's Sarsaparilla from Massachusetts (and exported to Britain), which was vigorously promoted on cards in the US. In Canada, Wilson & Warden, imprinted (at least around 1906) the statement 'W & W Tonic Brew Extract' on a regular view card of Toronto University. It was, however, the Lydia Pinkham Medicine Company that employed postcard views of universities most widely, including a view of 'High Street, Oxford University'! (Fig. 9) Although their best known product, Lydia Pinkham's Vegetable Compound, was not labelled 'tonic,' the concept was explicit in the advertising for female 'weaknesses.' In fact, the popular notion of weakness was an advertiser's dream in so far as it had become something of a popular preoccupation; in consequence, it was referred to implicitly, if not explicitly, in advertisement after advertisement. It lay behind much of the promotion for malted milks, not categorised as 'tonics,' but in the sense of an energy drink. A 1905 postcard view of New York happens to show a hoarding advertising Borden's Malted Milk for 'energy.' And Horlicks, the most successful malted milk drink over time, used postcard advertising: 'the Food Drink for All Ages' and 'Delicious, invigorating and nutritious.'

Energy drinks are still with us today, as are many of the old tonic herbs as part of the natural health movement, but otherwise, beginning around the 1930s the 'bottle of tonic' was gradually superseded, albeit by products promoted, in part, for more specific diagnoses to replace general 'weakness.' First by vitamin supplements (the 1930s or so has been called vitamania), then from the 1960s onward by the enthusiasm for antidepressants, in part to deal with the stress of living, something satirised on many modern cards. Equally, modern postcards suggest that we are in a new phase in the concept of tonics, namely pampering oneself with hedonistic rest and relaxation.

In adding a side-note to my comments on pharmacists and the role of their businesses in shifting the patterns of

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self-medication, I raise the question how are pharmacists viewed today, at least in terms of the level of personal service they provide. This is prompted by the fact that postcard images have moved away from the paterfamilias image on a good many cards up to the 1950s. Although the pharmacist on a British card circulating in the 1970s – it plays on the company name Boots – is depicted tidily dressed, the red nose hardly inspires confidence. At least pharmacists can have the consolation that negative images of physicians at the time are far more explicit.

The authority and conservatism among physicians

Compared with pharmacists, the medical profession in general has been less concerned with self-medication. However, its involvement in early public campaigns against quackery, its constant emphasis on making medicine more 'scientific,' prescription-only medicines, and the influence of individual physicians on their patients all affected patients' self-care during the century.

Returning to the early 1900s, the vigorous attacks on quackery from the media as well as from physicians and others, contributed to postcard cartoonists lampooning quacks. An example, shows a soap-box salesman selling 'Cure Everything Pills' including for 'Unemployment: Take six pills to-night and you'll be fully employed in the morning!' The attacks tended to spill over to the castigation of all 'old-fashioned' remedies deemed to be out of step with scientific evidence. After all, the term quackery has always been used loosely and, confusingly, and extends beyond products that are marketed with fraudulent intent. One growing influence on physicians, confirmed by postcards, was pharmaceutical companies, many of which, by the early 1900s were acquiring authority through economic power and an emphasis on research. Beginning in the last decades of the 19th century companies were courting physicians with detail men, free samples, and the advertising of selected products only to physicians and pharmacists.

Postcards from companies add detail to our understanding of the thrust of marketing with the implicit message to use the new and discard the old. As a communication tool (even after telephones became widespread), cards were used for advertising, placing, and confirming orders. For example, cards from Parke Davis & Company in 1896 offered physicians samples of 'Taka Diastase, Fluid Cascara Sagrada Aromatic,' and other listed products. Before 1900, some companies were also sending gifts to doctors. In 1899 the Antikamnia Company mailed a calendar, 'one for each doctor in the United States and Canada.' This was announced on a postcard that, naturally enough, also promoted company products for headaches etc.

Occasional cards refer to 'ethical pharmaceuticals', that is products advertised solely to medical personnel although their composition was public knowledge to distinguish them from 'secret remedies.' For example, a statement on the back of a series of cards about 'Percomorph fishes,' sent to US doctors from Mead Johnson, reads:

> Dear Doctor: More and more physicians are specifying Mead's Oleum Percomorphum because it is Council-Accepted, and not advertised to the public. It is supplied in liquid and capsule form, samples being offered only to physicians. If you approve this policy please specify Mead's.

No available studies indicate precisely the extent to which industry reshaped physician habits in prescribing or in recommending treatments during the first decades of the century. Nevertheless, even without such studies, it is clear that physicians did not speak or practice with a unified voice. Some practitioners were more conservative than others in accepting new products. Sometimes this might have reflected their responses to patient preferences. The issue was raised by George Bernard Shaw in the preface (published 1911) to his play *The Doctor's Dilemma*, one of his critiques of medicine that were not without impact. In elaborating on his interesting term 'patient-made therapeutics,' Shaw noted that when a patient has a prejudice, the doctor must either 'keep it in countenance or lose his patient ... If he gets ahead of the superstitions of his patients [the doctor] is a ruined man.' Stating this another way, Shaw said, doctors 'must believe on the whole, what their patients believe, just as they must wear what their patients wear'.

One of Shaw's doctors in *The Doctor's Dilemma* prescribed a commonplace over-the-counter medicine. On his 'Shop Window' sign, the doctor proclaimed: 'Doctor Leo Schutzmacher L.R.C.P. M.R.C.S. Advice and medicine sixpence. Cure Guaranteed.' It is noteworthy that the medicine which, according to Schutzmacher, 'really did [his patients] good' was 'Parrish's Chemical Food.' This, not a fictitious preparation, was a bottle of medicine containing iron and hypophosphites sold over the counter in virtually every pharmacy from the last decades of the 19th century onwards on both sides of the Atlantic. Many pharmacists made their own version or purchased it from small local companies to sell under their own shop label. Indeed, its general popularity over many years meant it was seen by many as a household remedy.

It is evident that physicians were not beyond, as recognised on humorous cards, recommending some household remedies and common sense dietary advice. Popular laxatives like castor oil and the pleasantly flavoured black draught were recognised on cards. On one example (Fig. 10, c. 1930), a physician enters a bedroom where a husband, in bed, clutches his chest, and the wife stands by.

> [Doctor]: Did you give your husband a black draught as I ordered?
>
> [Wife] I couldn't find one, Doctor – so I gave him the double six domino, but it very near choked him!

Self-medication, past and present

So far, I have indicated that, during the first half of the twentieth century, a Mr Smith and a Mrs Jones had to

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decide, out of a myriad of old and new remedies, which was best for themselves and their families. Decisions could be difficult amid advertisements, testimonials from friends and relatives, and variable advice from pharmacists or physicians. Hence it is not surprising that the shift away from household remedies was uneven and inconsistent, and, in many instances even when remedies were purchased, change was more apparent than real. For instance, four commercial preparations listed in a 1920 drugstore advertisement for spring tonics, in being familiar, were generally recognised as family (household) medicines. They were 'Compound Hypophosphites' (a version of Parrish's Chemical Food already noted); 'Wampole's Extract of Cod Liver Oil,' 'Compound Sarsaparilla' (a long-standing blood purifier), and quinine/iron tonic similar to what might be found in many a family receipt that was taken to the pharmacist for compounding.

By the 1950s, thirty years or so after the spring tonic advertisement, postcard evidence for self-medication practices had largely faded. This was due not so much to a decline in the mailing of cards, but to the virtual disappearance of 'traditional' home remedies following years of assault from commercial products, questions about their efficacy, and quite dramatic changes in social circumstances including easier access to physicians. However, postcard documentation of self-care in the 1980s and '90s revealed a new interest in 'grandmother's' treatments; it accompanied a new phase in the history of postcards with the publication of many providing specific social commentary (albeit with relatively limited circulation), 'free' or 'rack' advertising, and health education.

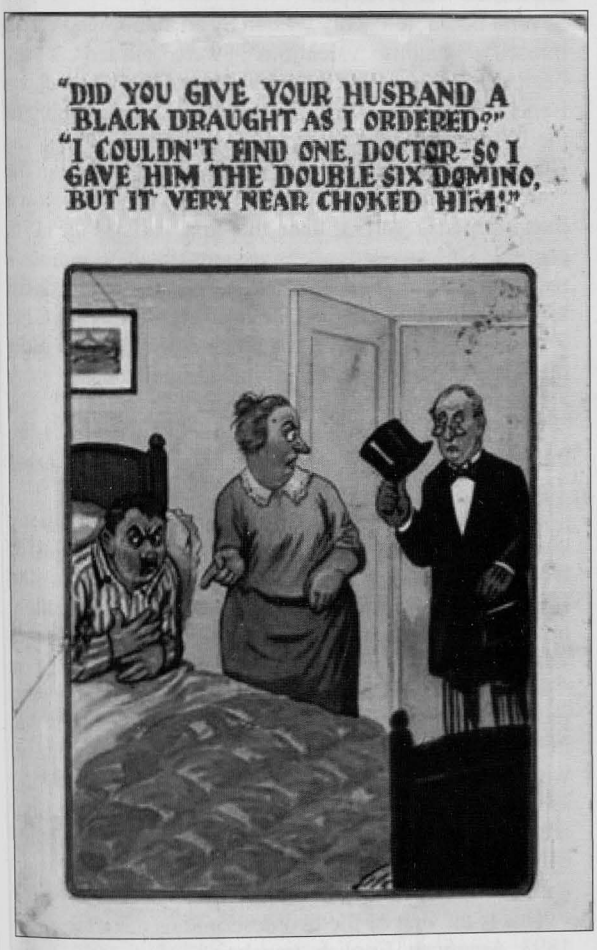

Figure 10

Generally speaking this interest in 'old-fashioned' remedies can be viewed as an aspect of the rise of the alternative/complementary medicine movement, much of which has added to the difficulties of decision-making, for instance, whether to try, say, echinacea or high doses of vitamin C for the common cold. Cards highlighting the new movement include those of Stella Marrs in the US. One, captioned 'There's a pharmacy in your pantry,' lists medicinal uses for herbs, etc., from cayenne to sage; and another card, titled 'Cold Comfort,' that features a smiling, attractive nurse, refers to the already mentioned footbaths and lemon juice, etc, with the following wording:

> Sit well-wrapped in a blanket, with your feet in a basin of water which is kept very hot, for one half-hour, and sip slowly at a mug filled with lemonade made with fresh lemon juice, plenty of honey, brandy or whisky, and boiling water. Then get into bed.

With these home remedies of yesteryear, the card also reflects much public questioning today of 'chemical' pharmaceuticals. Modern cards also help to document that the current promotion of health and natural remedies embraces foods, especially those called functional foods. One example is a 'Leftovers' postcard (c. 1989). It is cut from cardboard packaging, in this case that of Granola Bars where the packaging includes a list of 'Healthy Benefits.'

A humorous card from 1989 shows 'Oat Bran' being dispensed from a Water Dispenser. A humorous card that can make us chuckle – a reminder that cards still have a role in raising the spirits (though generally replaced by Get Well cards sent in sealed envelopes.) The card also reminds us that popular ideas of health products of the past are still with us, that constancy amid change continues to complicate decision-making, and that the public can still be very confused about what choices to make for their health, both for prevention and treatment, something often overlooked by health-care practitioners.

Acknowledgment

I want to acknowledge the influence over the years of Bill Helfand and his postcard collection (now in the National Library of Medicine), as is clear from a bibliography for this talk that is available from *jcrellin@mun.ca*

A list of cards shown in the original talk is also available on request.

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A Chronological Outline of the History of the *Poudre des Chartreux*, or Carthusian Powder, or Mineral Kermes

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Part One

In this paper we attempt to make sense, from various sources, of the long sequence of events that led to the remedy known as Carthusian Powder, or Mineral Kermes. We will do this by quoting from accounts of its preparation found in both English language sources and other European ones translated by us into English.

At this point we should forestall any confusion that the reader may have about our text. While, as usual, we make readability a priority in the tangled story that we wish to tell, readability must necessarily suffer in our translations where we endeavour to reproduce the details of the remedies and their chemistry as written about in terms of the understanding of the time. So in our translations we have used the nearest words that we have been able to find for some terms that had meaning at the time, but may well no longer be in use in current English.

The Carthusian Powder was believed to be a single substance made of antimony and sulphur. Modern chemists know of at least two different antimony sulphides (Sb_2S_3 and Sb_2S_5). Thus the remedy may well have been not a single substance but a mixture of the two (and with an uncertain degree of hydration).

Authors with a knowledge of chemistry have examined the early texts in order to work out what the steps involved in the preparation of the remedy actually produced. The processes have been repeated and the results analysed. We will see what some those authors have found, although they have interpreted the results in ways that do not always coincide.

The Carthusian Powder was soon adopted as a new medicine by many physicians and pharmacists. Some authors included it in their pharmacopoeias, where it appeared until the 20th century, its use dwindling gradually.

What follows here is a sequence of events in 10 sections that constitute an outline of the history of the Carthusian Powder or Mineral Kermes. These events mainly took place in the countries of Germany, France, Britain and Sweden from about 1600 to 1850.

Our 10 sections are: *Currus Triumphalis Antimonii* by Basilius Valentinus; *Soufre Doré d'Antimoine*; Johann Rudolf Glauber and his *Panacea Vulgaris ex Antimonio*; Claude de Commiers, Henri Rousseau de Montbazon and the 'Universal Medicine'; The *Traité de l'Antimoine* by Nicolas Lémery; The Roles of *Frère* Simon, King Louis XV and Mr de la Ligerie in the History of the *Poudre des Chartreux*; Louis Lémery Regards His Father as the Inventor of the Best *Poudre des Chartreux*; (in Part 2): Claude-Joseph Geoffroy's Memoirs on Mineral Kermes; From *Poudre des Chartreux* to Mineral Kermes; Mineral Kermes Explained by 19th Century Authors.

The earliest descriptions of substances very similar to the future Carthusian Powder can be found in German and French books published in the 17th century and in an early 18th century work on antimony by Nicolas Lémery. Then the Carthusian Powder became popular under this name in Paris from 1719 and was soon adopted by apothecaries and physicians, as a result of having being made public under the patronage of Louis XV. Lémery's role in the discovery of the powder was only acknowledged after his son Louis claimed it on his father's behalf in a memoir at the Académie Royale des Sciences in 1720.

After a period when the Carthusian Powder had continued to be sold steadily in apothecary shops without much new research being done on it, in the 19th century younger chemists like Cluzel in France, Berzelius in Sweden and many others in different countries researched its real nature using new chemical methods, and making it well known under the new name of Mineral Kermes. The substance could be found in many pharmacopoeias for the treatment of lung diseases and disappeared only later when better medicines were discovered and the use of antimony, which was toxic, became no longer desirable.

1. *Currus Triumphalis Antimonii* by Basilius Valentinus

Several books, allegedly written by an author who called himself 'Basilius Valentinus', were printed at the beginning of the 17th century. He described himself as a Benedictine monk living in Germany at the beginning of the 15th century. The subject of some of those books was chemistry. However none of his books was printed in the 15th and 16th century and none of his known manuscripts is earlier than the first half of the 17th century. This has caused discussions about Valentinus's real identity. A cautious opinion of modern bibliographers, including John Ferguson's,[1] is that Basilius Valentinus was a pseudonym of Johann Thölde, the very person who edited his printed books. Why Thölde may have done so is a mystery.

In any case, for the purposes of this article, we are interested in a book by Valentinus entitled *Currus Triumphalis Antimonii* and first published in 1604.

It is a chemical-alchemistic treatise on antimony containing precise descriptions of many remedies. Two of them seem to be the earliest predecessors of the Carthusian Powder or Mineral Kermes, and are definitely much earlier than Glauber's preparations that we are going to see later.

Both these processes start using antimony ore and produce a red powder. But an important difference is that in the first case the antimony is melted through heat, while in the second case liquid substances are used for the same purpose. These methods look similar to the two that are used for Mineral Kermes in most 19th century chemical texts: they are respectively called 'the dry way' and 'the humid way'.

This is the first of the two descriptions, taken from an 1893 American English translation of a 1685 Latin

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edition. In summary, antimony ore is pulverised and calcinated. The process is repeated several times. Then the antimony is melted in a crucible and vitrified. Finally a pleasant powder is obtained with the help of vinegar, water and spirit of wine:[2]

> Take best Hungarian Antimony, or any kind you can get; pulverize it as finely as possible, spread thinly on an earthenware dish (round or square) provided with a low margin; place the dish on a calcinatory furnace over a coal fire, which should at first be moderate. As soon as you see smoke rise from the Antimony, stir it about with an iron spoon, and continue doing so till there is no more smoke, and the Antimony sticks together in the shape of small globules. Remove it from the fire, pulverize again into a fine powder, place it on fire, and calcine, as before, till there is no more smoke. This calcination must be reheated not only till the Antimony gives out no more smoke, but does not conglomerate into globules, and has the appearance of pure white ashes. Then has the calcination of Antimony been successfully completed.
>
> Place this calcinated Antimony in a crucible, such as goldsmiths use for melting gold and silver, and set it over a violent fire, either lighted in a wind furnace or increased by means of the bellows, till the Antimony becomes liquid like pure water. [...]
>
> When Antimony has become vitrified in the way described, heat a flat, broad copper dish over the fire, pour into it the Antimony in as clear and thin state as possible, and you will have pure, yellow, pellucid glass of Antimony. [...][3]
>
> Take pure glass of Antimony prepared in [this] way, and uncombined with any foreign matter; pound it as fine as the finest flour, and place it in a broad-bottomed glass vessel, called Cucurbit.
>
> Pour, over the Antimony some highly rectified vinegar, subject to digestive fire, or, in summer, expose to the rays of the sun, shaking it once and again every day.
>
> Let this slow digestion be continued till the vinegar assumes a yellow, or rather reddish, color, like that of well purified gold. Then pour off this clear and pure extracted substance, add more vinegar, and repeat the same process till no more gold-colored Tincture can be extracted. Mix all the extract, filter, place in cucurbit, put on lid, distill the vinegar St. Mary's Bath, till there remains at the bottom a gold-colored powder approaching red; pour on this powder distilled rain water, and repeat this till all the acidity is washed out, and there remains a sweet and pleasant powder.
>
> This sweet powder you should pound in a hot marble or glass mortar, place in cucurbit, pour on it the best highly rectified spirit of wine till it covers the powder to the height of three inches; expose to gently digestive heat, as above, and there will be extracted a beautiful red Tincture with an earthy sediment at the bottom. [...]
>
> Three or four grains of this medicine will cure leprosy, and the new French disease.[4] It purifies the blood, dispels melancholy, resists every poison, removes asthma and all chest complaints, including difficulty of breathing, and relieves the stitch in the side.

Basilius Valentinus's second preparation which appears to be relevant to the subject of antimony medicinal powders is obtained by dissolving pulverised antimony in a powerful mixture of acids, and then by treating it with water, vinegar and spirit of wine like in the first case seen above:[5]

> [The] fixation [of Antimony] is brought about in the following manner: Pulverize some Antimony, place it in a broad-bottomed distilling-vessel, namely, in a cucurbit, pour on it *aqua fortis* to the height of six inches, close well with clay, and expose to gentle heat for ten days, to accomplish extraction: decant the pure and clear extract thus obtained, free it by filtration from all faecal impurities, place in glass vessel, and remove all the *aqua fortis* by distillation in the ashes. There will then remain at the bottom a dry, yellow powder of Antimony: pour on it distilled rain water, expose in similar glass vessel to moderate heat, and you will have, a red tincture (or extract); filter, distill the rain water gently in St. Mary's Bath, and there will remain a red powder. Pour on it strong distilled vinegar, which, in time, is colored red, like blood, and deposits a sediment. Distill this vinegar again, and again there remains a red powder. Reverberate this powder continuously for three days over an open fire, and extract from it the tincture with spirit of wine; then strain off the sediment that remains from the Tincture.
>
> Again remove by distillation the spirit of wine (by St. Mary's Bath), and there will remain a fixed red powder of wondrous efficacy. [...] It cleanses the ulcers, radically cures the French disease (syphilis),[6] and renovates the whole frame.

2. *Soufre Doré d'Antimoine*

Another substance similar to the future Carthusian Powder or Mineral Kermes was particularly well known in the second half of the 17th century and was described in some of the best known chemistry treatises or courses at that time, especially in France. It was usually called either Golden Sulphur of Antimony or Golden Diaphoretic Antimony.

It certainly was a mixture of different salts of antimony (like Mineral Kermes) and the methods used to prepare it by the various authors must have been slightly different (although they probably knew each other's methods), because their products differed in colour and also had different properties. For these reasons, as we are going to see, such substances could be more diaphoretic or more emetic.

One of such authors was Annibal Barlet who was teaching public chemistry lessons in Paris. In 1653 he published a textbook entitled *Le Vray et Méthodique Cours de la Physique Résolutive, Vulgairement Dite Chymie*. In the chapter about antimony he first explains the extraction of the pure metal from the ore. Then he writes that the remaining residue can be used to prepare Golden Sulphur:[7]

> As far as Golden Sulphur is concerned, dissolve the dross of that metal in boiling water, in a varnished earthenware pot; while hot, filter through a double cloth, pour good distilled vinegar drop by drop into the liquid, to precipitate it and dry it up on the dry ashes. It should be noted that a great quantity of water is required due to the viscosity of the substance and its tenacious colour, so the last precipitations are always the most beautiful. Otherwise, and preferably, grind not finely, while it is dry, and place it in very beautiful yellow oil, to let it precipitate as above; in which case if the matters of the above-mentioned purification or calcination have been equal, it will be more beautiful and more abundant.

The Swiss chemist Christoph Glaser, well known in Paris, was the demonstrator of chemistry at the Jardin Royal and in 1663 published his textbook *Traité de la Chymie*.

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In his *Traité* Glaser describes exactly the same preparation as Barlet, but under the name of Golden Diaphoretic Sulphur. Having described – like Barlet – the preparation of metallic antimony, he continues with the actual preparation of the 'sulphur' and the description of its properties:[8]

> You will find a jagged piece of metal, at the bottom of the dross, you will separate it by striking it with a hammer, and you will keep it separately, as well as the dross, with which you will be able to make the golden sulphur of antimony, by boiling it in common water and filtrating the decoction;[9] and by pouring on it distilled vinegar bit by bit, you will see a precipitation of red sulphur of antimony, which must be dulcified[10] by washing it several times, and then allowing it to dry.
>
> [...] The sulphur that is extracted from the dross of the metal, by decoction, filtering, precipitation, washing and drying, is called golden diaphoretic sulphur, but rather a powerful emetic, that can be used instead of the metallic crocus.

In 1667 Pierre Thibaut (also known as le Lorrain) published a *Cours de Chymie* dedicated to Antoine Vallot, principal physician to the king Louis XIV. Thibaut presented himself as a '*Distillateur ordinaire du Roy*'. In his *Cours* there is a chapter entitled *Le soufre doré diaphoretic*, where the author gives very similar explanations to those of Barlet and Glaser that we have mentioned before, although Thibaut's explanations are considerably more detailed.[11]

Long before writing his treatise on antimony, in 1675 the young Nicolas Lémery had published the first edition of his *Cours de Chymie*, structured exactly like the *Traité de la Chymie* of his teacher Glaser (which we have seen above). Here we translate the paragraph entitled *Soulfre doré d'Antimoine*:[12]

> Take the dross of metallic antimony that we have described, pulverise it not finely, and boil it with common water in an earthenware pot for half an hour. With it make a washing, and pour vinegar on the filtrate; there will be a precipitation of a red powder. Filter and separate your precipitate, that you will dry and keep. This is what is called golden sulphur of Antimony, which is emetic.

Then Lémery adds some comments, one of which is:

> Some authors have written that the golden sulphur of antimony was diaphoretic, but without doubt they were making it in a different way.

This means that according to Lémery the other authors should not have called the sulphur 'diaphoretic' if they were making it in the same way as he was.

Many years later, in 1707, Lémery also published his *Traité de l'Antimoine* where he included the preparation of his own sulphur of antimony that is rather different from the traditional one that we have just seen in his *Cours de Chymie*.

Just a year after the publication of Lémery's *Cours de Chymie*, Moyse Charas published the first edition of his *Pharmacopée Royale Galénique et Chymique*. Like Lémery, Charas had been Glaser's pupil and had learnt from him many of the elements of mineral chemistry necessary for the non-galenic[13] part of his pharmacopoeia.

In the chapter on pure metallic antimony, Charas explains the preparation of the metal (like Barlet, Glaser, Thibaut and Lémery), and then he continues like this:[14]

> It is possible to pulverise the dross of the metal, and having boiled it for some time in a good quantity of water, filter its decoction; then, pouring on it some distilled vinegar, precipitate a yellow substance, that has been called golden Sulphur of Antimony. Some have only attributed a diaphoretic quality to it, although it mainly acts through vomiting and evacuation. Then you should dulcify this precipitate through several washings, dry it, and administer from three or four, up to five or six grains, mixed with some other substance suitable to its action.

As we can see, Charas too has followed the instructions and explanations of some of his predecessors almost to the letter. However their methods were not always described in detail but must have been different because they produced precipitates of different colours: yellow, red or saffron.

Nearly half a century later, in 1723, an anonymous author who was almost certainly Jean-Baptiste Sénac, physician to the King (Louis XV), published a *Nouveau Cours de Chymie*. We can read the following in a short chapter entitled *Soulphre doré d'Antimoine*:[15]

> This is the sulphuric part of the dross precipitated by means of an acid.
>
> Boil the dross of the [...] metal in common water for half an hour, filter the liquid, and put vinegar on the filtrate. You will have a red matter that will precipitate; dry it and keep it. This is what is called golden sulphur of antimony.

Then the author adds many comments, including this:

> It does not appear that the golden sulphur of antimony mentioned by the Ancients was the same as ours, because they attributed a diaphoretic virtue to it, and ours is emetic.

Sénac's text and comments are almost identical to those of Lémery that we have seen above.

It seems obvious that all these authors had consulted the works of those who had preceded them. It is also likely that some of them had access to books by others that we have not found during our present research.

3. Johann Rudolf Glauber and his *Panacea Vulgaris ex Antimonio*

Johann Rudolf Glauber was born in Karlsbad in 1604. He did not have a formal or academic education, but soon became a skilled chemist. Some have said that he was also a physician, or that he at least practised medicine. He was active in Amsterdam and in Germany, mainly as a pharmaceutical chemist. He also wrote an extraordinary number of chemical treatises before dying in Amsterdam in 1670.

Glauber is regarded as the first author to have described an emetic, expectorant and purgative salt of antimony which, because of the way it was prepared, was essentially the same as the one later called Carthusian Powder or Mineral Kermes.

Although many authors have credited Glauber with the first preparation of this type of remedy, it appears strange that no one has ever mentioned in which treatise Glauber described it. The authors of the present article, having consulted as many of Glauber's works as possible, have found that the only accurate description of this substance given by Glauber is in the second part of his *Pharmacopoea Spagyrica*, where he calls it *Panacea Vulgaris ex Antimonio*. Glauber's description is very

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Figure 1. The German chemist Johann Rudolf Glauber was one of the earliest authors to write about 'sulphur of antimony' as a remedy. Wellcome Library, London.

concise but reasonably clear; and, because of the first word of the name, we believe he regarded it as a universal remedy.

In the text Glauber does not attribute the paternity of the panacea to himself, nor specifically to anyone else. The adjective '*vulgaris*' can mean that the remedy was already in use and well known.

This is our translation of Glauber's relevant text:[16]

> I wrote earlier about the preparation of the ordinary Panacea of antimony, and I have taught how to prepare it. But being the description sometimes dispersed in different treatises, and more obscure, and not everyone having all those treatises, I have decided that it is good to repeat that description here, and to place it in this treatise.
>
> The preparation mainly consists in the calcination by means of the nitre, which corrects and modifies the poison and immaturity of antimony. Then the pure part is extracted by means of the spirit of wine, and having been extracted it is freed of the spirit of wine through evaporation; and a soft and reddish powder should be made, that can have the effects which are attributed to it here.[17] In the morning, before taking food, it should be taken on its own or mixed with wine, beer, some hot broth, a soft boiled egg, or a roasted apple, followed by some fasting hours, until its effect is accomplished. The dose is ¼, ½, 1, 2, 3 or 4 grains at most each time, and appropriately in accordance to the age of the patients and to the illness; on which subject the Favourable Reader will find many things as they are described in the first part of this *Pharmacopoea Spagyrica* and also in my *Miraculum Mundi*, which I am going to add also here for the benefit of the patients.

Immediately after this Glauber explains a long series of excellent virtues and uses of his *Panacea*.

4. Claude de Commiers, Henri Rousseau de Montbazon and the 'Universal Medicine'

De Commiers (or Commier) was born in the French Alps in the early decades of the 17th century and died in Paris in 1693, being old and having become completely blind. He was a tireless writer on very disparate subjects.[18] Although he was not a physician or a pharmacist, he managed to master the techniques of chemical pharmacy surprisingly well and to explain them to his readers.

A small book by de Commiers entitled *La Médecine Universelle, ou l'Art de Se Conserver en Santé, & de Prolonger Sa Vie* was published in 1687. Among many other peculiar subjects, the book contains a description of the preparation, use, virtues and uses of a 'Universal Medicine', without any explicit reference to its inventor.

Louis Lémery later stated that de Commiers's Universal Medicine was 'a very accurate translation or explanation' of what Glauber had written about his *Panacea*.[19] As Glauber's product was essentially the same as the later Carthusian Powder or Mineral Kermes, so was de Commiers's.

The preparation described by de Commiers starts with the production of a solvent by melting nitre (or saltpetre) with charcoal made with a 'sweet' wood, solidifying it by letting it cool down, and finally obtaining an oily liquid through the action of the humidity of the air. Having this oily solvent available, de Commiers describes the preparation of the Universal Medicine:[20]

> Then take four or five parts of this rectified oil, and one part of the best Antimony that is recognised by a certain redness that it gets from Gold, that is found near its mine. Having reduced the Antimony to a very fine dust on the marble, put it in a large flask of glass, and add the oil of nitre from above. Two thirds of the flask should remain empty; cork the flask so well that it cannot breathe, put it in maceration at moderate fire or at a lamp, until the oil that floats over the Antimony appears of a golden or ruby colour; then take your oil, and having filtered it through the paper, put it in another flask of glass with a long neck, and add from above the same quantity of well rectified spirit of wine. Keeping at least two thirds of the flask empty, cork it well, then put it in maceration at low heat for some days, until the spirit of wine has extracted all the colour of the oil or tincture of Antimony. So the oil of nitre will remain well clear and white at the bottom; the spirit of wine impregnated of the golden tincture of Antimony will float over it. Take the spirit of wine, and separate it by letting the oil settle. [...]
>
> Put your spirit of wine in a still of glass, distil it slowly until only approximately one fifth remains at the bottom, with the tincture of the Antimony; or distil all the spirit of wine, leaving only the essence of Antimony at the bottom. So you will have the Universal Medicine either as a liquid or as a powder, with which anybody will preserve or cure himself against all kinds of infirmity or illness.

The abbot Henri Rousseau de Montbazon (who was born some time between 1630 and 1643 and died in 1694) was known as '*le Capucin du Louvre*' because of his religious role and because he had his laboratory for a long time at the Louvre (residence of the French kings for several centuries before they moved to Versailles). Montbazon was a famous physician and cared for Louis XIV, before finally retiring in the abbey of Cluny.

In 1706 a posthumous book by Montbazon was published by his brother Rousseau de la Grangerouge. It was entitled *Préservatifs et Remèdes Universels*. One of the remedies described in the book is Claude de

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Commiers's 'universal medicine' as we have seen above.[21] Montbazon explicitly attributed the preparation to de Commiers.[22]

Montbazon's version of the remedy is a precise transcript of de Commiers's text, with the addition of some phrases and a few details on the method of preparation (announced under the heading of 'explanations of difficulties').

5. The *Traité de l'Antimoine* by Nicolas Lémery

Nicolas Lémery was born in 1645 in Rouen and studied chemistry as a pupil of Christoph Glaser in Paris. Then he extended his knowledge to pharmacy, natural history and more chemistry in Montpellier. Later he taught chemistry privately in Paris, where he became Louis XIV's apothecary and opened a laboratory. Later Lémery graduated as a physician at Caen university and became a member of the Académie Royale des Sciences until his death in 1715.

Lémery wrote a *Cours de Chymie* (1675), the famous *Pharmacopée Universelle* (1697), the *Traité Universel des Drogues Simples* (1698) and finally the *Traité de l'Antimoine* (1707).

Louis Lémery, Nicolas's son, claimed strongly that the best version of the drug later called *Poudre des Chartreux* should be credited to his late father. In effect his powder was later regarded as the first *Poudre des Chartreux*, although of course Nicolas could not have used that name. Nicolas obtained his powder by an initial chemical process and he did not purify it. As we are going to see, some authors later criticised him for this. Glauber and nearly all other authors obtained their powders with an initial chemical process, and then purified them by means of spirit of wine.

The present authors have found the following in Nicolas's *Traité de l'Antimoine*, and this is surely what Louis was referring to. Nicolas wrote that after dissolving antimony ore, through a few successive steps he had obtained a reddish-brown powder which we know was very similar to the Carthusian powder:[23]

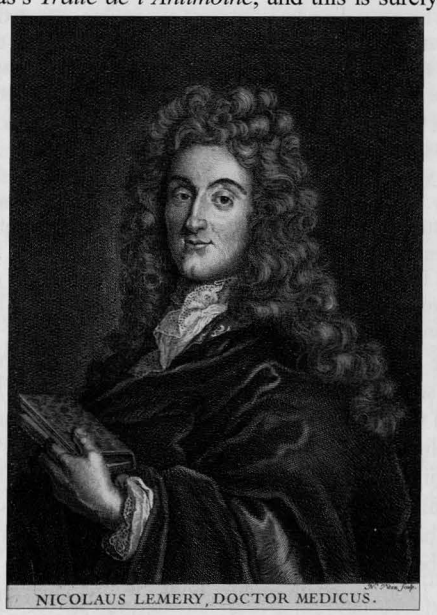

Figure 2. Nicolas Lémery was credited by his son Louis with the invention of the best version of the future Carthusian Powder. Wellcome Library, London.

> After the dissolutions of Antimony ore by means of acid dissolvents, [...] I have put some pulverised Antimony in a [...] flask, I have poured some oil of tartar [...] on it up to a height of five or six fingers; I have placed the flask on warm sand, and after having let the matter macerate for twenty-four hours, I have increased the heat and let it boil for approximately half an hour; the liquid has become as red as blood, because the oil of tartar that is such a re-melted fixed alkali, has dissolved the Antimony. Also the spirit of ammoniac salt is a dissolved volatile salt; but because it is volatile it would have sublimated or dispersed if the infusion had been put on the fire, and as a consequence it would not have been able to dissolve the Antimony.
>
> I have separated the red tincture from over the matter at the bottom by pouring it in another flask and have let it rest: a kind of reddish-brown sediment has precipitated, and the surfacing liquid has remained clear and of a yellow-orange colour; I have filtered it and poured acids on it, and an ebullition has taken place, but only a little of vitriolic tartar has precipitated; during the ebullition I have only felt a slight sulphuric smell that has lasted only for a moment.
>
> I have washed the red matter well to remove the impression of salt of tartar and I have let it dry; it has reduced to a red powder that is very similar to the ordinary golden sulphur of antimony, and actually it is; but it does not have a bad smell like it, and its quality is less emetic; I attribute the reason to the alkali of the salt of tartar that has absorbed part of the points of Antimony, and as a consequence it has made it weaker in its action. [...] I have given from four up to five grains of the red matter or sulphur of Antimony to some patients: I have noticed that it did not appear to produce any affect to some of them, on others it produced nausea, but without vomit, and purged them a little from below; it made others vomit mildly. I also thought that sometimes it produced transpiration: because I have often found some moisture on the skin of those who had taken it. I regard this remedy as suitable for asthma and for the other illnesses of the chest, when not only is sulphur convenient, but when one wants to cause mild vomiting; and it can also be useful for scabies and leprosy.

Unlike Glauber and other authors who obtained the powder with an initial chemical process, and then purified it by means of spirit of wine, Nicolas Lémery obtained his powder by the same initial process, but he did not purify it. As we are going to see, some authors later criticised Nicolas for this.

6. The Roles of *Frère* Simon, King Louis XV and Mr de la Ligerie in the History of the *Poudre des Chartreux*

In about 1713 Mr de la Ligerie, a surgeon practising in Paris and selling drugs, decided to give one of his remedies, an antimonial powder, to *Frère* Simon, who was the apothecary at the Carthusian monastery in Paris.[24] According to la Ligerie 'it had come to him from Mr de Chastenay, Royal Lieutenant of Landau, who had learnt how to prepare it from a German *apotiquaire*, who had been Glauber's pupil.'[25]

At the beginning of 1714 *Frère* Dominique, another member of the same Carthusian fraternity, was struck by a very serious chest complaint and became desperately ill.

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So *Frère* Simon obtained permission to attempt to cure him using the powder received from la Ligerie. The result was that Dominique was promptly and almost miraculously healed.

The news spread and many people were seeking the antimonial remedy – that had become known as *Poudre des Chartreux* – from *Frère* Simon. So in 1719 Simon published a pamphlet describing the virtues of that powder. Its title was *Vertus et Usage de la Véritable Poudre Alkermes ou Aurifique Minéral, Dite Vulgairement Poudre des Chartreux*. From the title it seems that Simon was the first author to present the remedy under the names of Carthusian Powder or Mineral Kermes that would be used until now. The second name certainly refers to the similarity in colour between that medicinal powder and the one obtained from the insect kermes (*Coccus Ilicis*) and used as a dye.

The main purpose of the pamphlet was to describe the virtues of the remedy as claimed right at the beginning of the document.[26]

> This remedy is one of the greatest ever appeared, particularly because it has a universal character due to its alkaline, sulphurous and balsamic parts, and also due to its anodyne virtue, which penetrates the whole condition of the body through digestions and circulation of the blood, and corrects all its defects and impurities, pushing from the centre to the periphery all that can impede its fluidity through a perceptible or imperceptible transpiration. If the defective matters are in the first routes, it acts through mild and light vomiting; if they are in the intestines, they are precipitated without any violence from below. If the kidneys are overloaded, or the nervous system is embarrassed by some acrid humours, the remedy relieves the patient by precipitating through the urine, so that by aiding nature and only operating in harmony with it, it gives back to it the original quiet that it had lost because of the derangement of the humours, and allows to enjoy perfect health.

This is followed by detailed instructions for the use of the remedy in each of many illnesses for which it is alleged to be suitable.

The pamphlet does not mention the name of Brother Simon; however it ends with formal approvals by the doctors Thuillier and Lémery. We are going to see that the latter was Louis Lémery, a member of the Royal Academy of Sciences.

About the same time as Simon's pamphlet was being published, the royal doctors and apothecaries, having heard that story, came to believe in the virtues of the remedy. In 1720 the young Louis XV, king of France, after advice from his principal physician Claude-Jean-Baptiste Dodart, decided that the new medicine containing antimony and apparently very effective against 'chest complaints' should be revealed to physicians, pharmacists and the public.[27] Therefore they contacted la Ligerie on the King's behalf, asked him to prepare the drug in their presence and instructed him to publish the description of the preparation in an appropriate pamphlet, the state bearing the costs of publication.[28]

The pamphlet, dated 20th September 1720 and entitled *Alkermes ou Aurifique Minéral, à la Manière de Glauber*, begins with the following description of the preparation of the remedy:[29]

> You should take some saltpetre or nitre [...], crush it and then put it in a German crucible; put the crucible in a furnace [...]: surround the crucible with ignited coal. Having the saltpetre melted, put [...] some roughly pulverised charcoal [...]: pour the melted matter into a [...] mortar [...]; then, having cooled it down in a glass vase, expose it to the air, until it is watery: filter the liquid [...].
>
> Take four pounds of good Hungarian Antimony, broken into small pieces [...]; put it in a coffee pot that can contain four pints or more; pour on it one pound of liquid of fixed nitre, described above, and four pints of rain water. Boil all of it for two hours. After that remove the coffee pot from the fire, and filter two thirds of the liquid while still hot [...].
>
> Fill the coffee pot again with boiling rain water, and add eight ounces of the liquid of fixed nitre. Boil it for two hours [...]; then, having removed the coffee pot from the fire, filter two thirds of the liquid again [...].
>
> Then fill the coffee pot for the third time with boiling rain water, and add eight ounces of liquid of fixed nitre. Boil all of it again for two hours, and having removed the coffee pot from the fire, filter all the boiling liquid. Pour these three

Figure 3. The young king Louis XV made sure that the preparation of the Carthusian Powder would be made public. Wikimedia Commons.

> decoctions in a large terrine of sandstone. Leave them for twenty-four hours without mixing them; and after that, pour out [...] the liquid floating on a red powder that you will find at the bottom of the terrine. Put that powder in a funnel covered with a paper filter, to let it dry. After that pour water on it [...], until the drops of water falling through the filter no longer have any saltiness.
>
> Let this powder dry in open air. When it is dry, detach it [...] from the paper, in order to put it afterwards in a small bowl of varnished earthenware, and pour on it approximately four ounces of good brandy, which you will ignite. Later dry the powder [...]. Burn the same quantity of brandy there again, and dry the powder as before.[30]

La Ligerie regarded his product as a single substance, as it was obtained through chemical reactions rather than by mixing simple medicaments.

The essence of this description by la Ligerie appears very similar to the method given by Lémery 13 years

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earlier in his *Traité de l'Antimoine* (shown above). Therefore we cannot exclude that la Ligerie plagiarised him or at least had been influenced by him, as Lémery's son Louis later claimed.

Immediately after this description of the preparation, la Ligerie's pamphlet contains the approvals of the apothecary Bolduc and of doctor Dodart; and these are followed by the virtues and uses of the remedy, copied word for word and in full from Brother Simon's pamphlet that we have partially translated above.[31]

Acknowledgement

The authors, who are not native English speakers, wish to thank Michael Taylor for revising the text.

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Endnotes and References

1. Ferguson J. *Bibliotheca Chemica*. Glasgow: John Maclehose and Sons, 1906: Vol. 1, 81.
2. Valentinus B. *The Triumphal Chariot of Antimony*. London: James Elliot and Co., 1893: 46-48.
3. After this Valentinus describes a second way to prepare glass of antimony, although he thinks it is not as good as the first one, and then goes on with the next step of the preparation of his remedy.
4. 'The new French disease' was the '*morbus Gallicus*', a term that referred to the illness later called syphilis and that had never been used before 1494. Therefore this text cannot have been written before that year, and certainly not at the beginning of the 15th century.
5. Reference 2: 52-53.
6. Here the author mentions the '*French disease*' again and also specifies '*syphilis*'. Therefore this text cannot have been written earlier than 1494. Further on in this same work Basilius mentions again several times the venereal disease that has recently appeared among the soldiers.
7. Barlet A. *Le Vray et Méthodique Cours de la Physique Résolutive, Vulgairement Dite Chymie*. Paris: N. Charles, 1653: 531-532.
8. Glaser C. *Traité de la Chymie*. Paris: chez l'Autheur, 1663: 170-174.
9. Decoction meant the liquid resulting from boiling down something so as to extract its essence.
10. Sweetened, made gentle.
11. Thibaut P. *Cours de Chymie*. Paris: Thomas Iolly, 1667: 103-107.
12. Lémery N. *Cours de Chymie*. Paris: chez l'Autheur, 1675: 180-182.
13. A galenic remedy was one that was mainly made with multiple vegetable substances and could be more complex than chemical medicines. The word 'galenic' comes from the name of the famous Greek pharmacologist and physician Galen.
14. Charas M. *Pharmacopée Royale Galénique et Chymique*. Paris: chez l'Auteur, 1676: 994-997.
15. *Nouveau Cours de Chymie*. Paris: Jacques Vincent, 1723: 478-481.
16. In order to produce this English translation of Glauber's text we have consulted a Latin and a German edition and tried to reconcile a few minor differences. It should be noted that the second edition shown below is in German, although its title is almost entirely in Latin. Glauber J.R. *Pharmacopoeae Spagyricae Pars Secunda: de Vegetabilium, Animalium, & Mineralium Praeparatione, per Solvens Universale*. Amsterdam: Joannes Janssonius, 1656: 65. Glauber J. R. *Pharmacopaeae Spagyricae Ander Theil: de Vegetabilium, Animalium, & Mineralium Praeparatione per Solvens Universale*; in *Opera Chymica*. Frankfurt: Thomas Matthias Götzen, 1658: 62-63.
17. Probably these last words refer to the therapeutic effects of the powder described by Glauber immediately after the end of this brief section.
18. Such as comets, spectacles, the spoken and written language, the Church, cryptography, geometry, mineral waters, machines to raise water, phosphorus.
19. And the names of the two drugs were the same: Glauber's term 'panacea' has exactly the same meaning as de Commiers's 'universal medicine' ('*médecine universelle*').
20. De Commiers C. *La Médecine Universelle*. Paris and Bruxelles: Jean Leonard, 1687: 41-44.
21. Rousseau de Montbazon H. *Préservatifs et Remèdes Universels*; in *Secrets et Remèdes Éprouvez*. Paris: Claude Jombert, 1718: 95-101.
22. Montbazon did not know that de Commiers might have paraphrased and expanded Glauber's *Panacea Vulgaris* (if Louis Lémery was right).
23. Lémery N. *Traité de l'Antimoine*. Paris: Jean Baudot, 1707: 20-23.
24. We are writing here that la Ligerie 'gave' the powder to *Frére* Simon, because we understand that at the time Simon was not preparing it yet. However Louis Lémery, who was the first to publish the story, was not clear about this, because he wrote that Simon had "received" it from la Ligerie, but also that la Ligerie had "communicated" it to Simon. In both cases Louis was referring to the first contact just before 1714 between la Ligerie and Simon, and there appears to be a contradiction. However in later years Simon, who was a competent apothecary, definitely was making the powder and selling it to the public, but was not necessarily revealing how he was preparing it.
25. The words between quotes can be found in: Lémery L. *Observation Historique et Médicinale sur une Préparation d'Antimoine, Appellée Communément Poudre des Chartreux, ou Kermès Minéral*; in *Histoire de l'Académie Royale des Sciences - Année M.DCCXX*. Paris: Imprimerie Royale, 1722: 418.
26. *Vertus et Usage de la Véritable Poudre Alkermes ou Aurifique Minéral, Dite Vulgairement Poudre des Chartreux*. Paris: Florentin Delaulne, 1722: 1-4. The document is dated 27th August 1719, but it has not been possible to find a copy actually printed in that year in any library catalogue.
27. A question that arises when we read the accounts of extraordinary cures attributed to this medicine – even by experts like the physician Louis Lémery (son of the famous Louis Lémery) – is whether this drug had cured the patients or whether they were simply improving spontaneously. It should be remembered that, both in the past and recently, antimony has been regarded as toxic and to be used with extreme caution.
28. Actually the King did even more, because he paid la Ligerie handsomely for placing the remedy's preparation into the public domain.
29. *Alkermes ou Aurifique Minéral, à la Manière de Glauber*. Toulouse: Claude-Gilles Lecamus, 1720: 1-4.
30. For the sake of brevity we have omitted some repeated sentences (but not all) and some minute technical details.
31. Nowadays it would seem extraordinary that an official scientific document should contain a long quotation from an earlier publication by another author without any reference to the source. However it seems that Bolduc, Dodart and even the King had no objection (even if they were aware of this plagiarism).

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Major Accessions to UK Repositories in 2008 Relating to Pharmacy and Chemistry

Local

Aberdeen City Archives, Town House, Broad Street, Aberdeen AB10 1AQ. Royal Pharmaceutical Society of Great Britain, Aberdeen and North East Scottish branch: minute books, ledgers, corresp, publications, subject files c1839-1990 (DD/1156)

Brent Archive, Cricklewood Library, 152 Olive Road, Cricklewood, London NW2 6UY. Frederick James Mills, pharmacist and chemist, Willesden: accounts, with notes on optics when a student (1920s) 1946-63 (2/2008)

Cornwall Record Office, Old County Hall, Truro TR1 3AY. Unnamed chemist, Fowey and Bodmin: prescription books 1800-2000 (AD1933)

Flintshire Record Office, The Old Rectory, Rectory Lane, Hawarden CH5 3NR. Hawarden Pharmacy: prescription, poisons and dangerous drugs registers 1921-80 (AN4160); Williams & Son, pharmacist, Mold: prescription book 1885-1915 (AN4154)

Gloucestershire Archives, Clarence Row, Alvin Street, Gloucester GL1 3DW. WH Hampton, chemist, Gloucester: prescription books 1834-1914 (D2914)

Lambeth Archives Department, Minet Library, 52 Knatchbull Road, London SE5 9QY. JW Rumsey & Son, chemist, West Dulwich: prescriptions, returns and receipts books c1920-49 (2008/16)

Museum of Science and Industry in Manchester, Liverpool Road, Castlefield, Manchester M3 4FP. Duckworth & Co, manufacturing chemists, Manchester: records incl sales ledgers and product labels 1890-2006 (2006.46)

North Devon Record Office, North Devon Library and Record Office, Tuly Street, Barnstaple EX31 1EL. FE Battershill, chemist, Barnstaple and Braunton: prescription books 1924-1941 (A211)

North Yorkshire County Record Office, Malpas Road, Northallerton DL7 8TB. GF Hird, chemist, Northallerton: pharmacy records, prescription books, corresp 1936-83 (ZFI)

Oxfordshire Record Office, St Luke's Church, Temple Road, Cowley, Oxford OX4 2HT. T Goodman, chemist, Banbury: prescription books 1817-43 (Acc 5793)

Peterborough Archives Service, Peterborough Central Library, Broadway, Peterborough PE1 1RX. Boots Co Ltd, pharmaceuticals manufacturers and retailers: Peterborough branch prescription books 1894-1923 (PAS/BOOT)

Plymouth and West Devon Record Office, Unit 3, Clare Place, Plymouth PL4 0JW. Unnamed chemist, Plymouth and South East Cornwall: prescription books 1846-1890 (G186)

Powys County Archives Office, County Hall, Llandrindod Wells LD1 5LG. Unnamed chemist, Radnorshire: prescription book 1881-87 (R/BI/3); Unnamed chemist, Montgomeryshire: prescription book 1869-98 (M/BI/6)

Sheffield Archives, 52 Shoreham Street, Sheffield S1 4SP. Chemist and druggist, Sheffield: prescription books (2), for chemist possibly named Harrison 1832-1839 (X171)

Sutton Local Studies & Archives Centre, Central Library, St Nicholas Way, London SM1 1EA Westlake Pharmacy, Sutton: prescription books 1875-1900 (Accession 760)

West Glamorgan Archive Service, Civic Centre, Oystermouth Road, Swansea SA1 3SN. Melincryddan Chemical Works: wages book 1841-47 (D/D Z 703)

Special

Royal Institution of Great Britain, 21 Albemarle Street, London W1S 4BS. Peter Day, professor of Chemistry: papers incl corresp, lecture and research notes c1970-1998 (RI MS PD)

University

London University: King's College Archives, King's College London Archives, Strand, London WC2R 2LS. Stephen Finney Mason, professor of chemistry: papers 1859-2007 (K/PP174)

Manchester University: John Rylands Library, 150 Deansgate, Manchester M3 3EH. Sir Edward Frankland, chemist and Percy Faraday Frankland, chemist: corresp and papers (2008/042); William Henry Perkin, chemist: lecture notebook 1893 (2008/039)

Reading University: Museum of English Rural Life, Redlands Road, Reading RG1 5EX. Walter Gregory & Co Ltd, animal medicine producers, Crawley: recipe books and photographs 1869-1939 (DX1797)

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When Shall We Celebrate an International Pharmacy Day?

Halil Tekiner, MSc Pharm, BSc (Turkey)

Last May, Ms Myriah Lesko from the International Pharmaceutical Federation (FIP) kindly asked me to write a short article about the history of Turkey's National Pharmacy Day, May 14, to be published as a part of promotion of the upcoming FIP Congress in Istanbul. Writing about this subject made me curious about whether other countries commemorated such a day. I conducted a research on this and was slightly disappointed to find that not much was being done elsewhere. Although some nations host pharmacy-related days, weeks, and even a month under different names, these events focus on patients, pharmacy students, or those who seek a career in pharmaceutical industry; none of these events focused on the pharmacist him/herself. As per my understanding, these events are not in line with our own concept of National Pharmacy Day apart from Turkey. Few countries including the United States, Canada, and the Czech Republic hold a true National Pharmacy Day in this context.

I also continued my search for an International Pharmacy Day until I was informed by the FIP that such a concept did not exist. While we hold international celebrations of other professions, e.g., Secretaries' Week (March 21 to 26), International Nurses' Day (May 12) and World Teachers' Day (October 5), it is a pity that we do not have one common day for pharmacists and pharmaceutical scientists during which we can celebrate our profession together throughout the world. This day can also serve to remind people of the invaluable service performed by pharmacists and pharmaceutical scientists as an integral part of the health care team. Therefore I humbly suggested in my aforementioned article that we could come together to celebrate an International Pharmacy Day on **September 25,** since this day in 1912 witnessed the official formation of the International Pharmaceutical Federation (FIP) in The Hague, the Netherlands .[1]

I am glad that this suggestion was very strongly welcomed by the FIP officials and a relevant motion has recently been proposed by the Turkish Pharmacists Association (TEB) to be discussed at the upcoming General Assembly.

However, I personally believe that this proposal should also be discussed among pharmacy historians. If they agree on a specific date – whether this one or not – that would of course be easier and much more appropriate for decision-making authorities in appointing such a day. Any ideas, comments or contributions from pharmacy historians would be highly appreciated.

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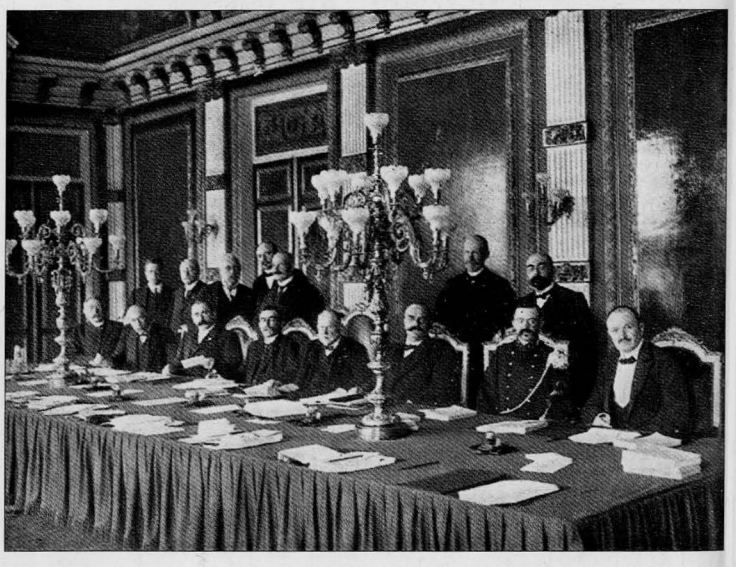
Reference

1. Koning WDA. 50th Anniversary of FIP, 1912-1962. *Journal mondial de Pharmacie* 1962; (5): 181-219.



A photo from FIP's constituent meeting held on September 25, 1912, in The Hague. (Courtesy of FIP)

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British Society for the History of Pharmacy

840 Melton Road, Thurmaston, Leicester, LE4 8BN
Tel: 0116 264 0083, Fax: 0116 264 0141, Email: bshp@associactionenterprises.com

The British Society for the History of Pharmacy was formed in 1967 under the aegis of the Pharmaceutical Society of Great Britain, having originated from its History of Pharmacy Committee.
BSHP seeks to act as a focus for the development of all areas of the history of Pharmacy, from the works of the ancient apothecary to today's ever changing role of the community, hospital, wholesale or industrial pharmacist.

Aims

Promotion of historical studies related to pharmacy.
Advancement of knowledge and propagation of understanding of the history of pharmacy.
Publication of the research work of pharmaceutical historians.
Preservation of pharmaceutical artefacts and historic pharmacies.
Support for the work of relevant museums and offering advice on establishment of other pharma-ceutical exhibits and on the preservation of pharmacies.
Co-operation with related professions and local historians on medico-pharmaceutical topics of mutual interest.

Pharmaceutical Historian

The *Pharmaceutical Historian* has been published since 1967, at first intermittently, but on a regular quarterly basis from 1972. Issues generally comprise 16 pages and cover.
An index for the years 1967-1995 was published in 1998. An index for 1996-2000 was published in 2000 and for 2001-2005 in December 2005.
Papers, short communications and letters in English on any aspect of the history of pharmacy are welcome and should be sent to the address above or by email to *bshpeditor@associationhq.org.uk*
Any illustrations are converted to monochrome for printing. Further details of requirements can be found on the website *www.bshp.org* under Publications.

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Membership costs £20.00 per annum and includes:

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PHARMACEUTICAL HISTORIAN

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Contents

Diary

Note earlier starting time for future meetings

Wednesday 17 February 2010

'"An heirloom to be handed down": the delftware collection at the Royal Pharmaceutical Society' by Briony Hudson, 6.00 at Lambeth.

Wednesday 19 May 2010

'Pharmacy and slavery: Apothecaries, medicines and the slave trade' by Dr Stuart Anderson. A joint meeting with the Faculty of the History and Philosophy of Medicine and Pharmacy, 6.00 at Lambeth. Tickets will be available later.

Wednesday 29 September 2010 tba

Wednesday 17 November 2010

'Horatio Nelson: his wounds' by Peter Warwick, President of the 1805 Society, 6.00 at Lambeth.

26-28 March 2010, BSHP Annual Spring Conference Best Western Diplomat Hotel, Llanelli.

Theme: **Pharmacy Practice and Practitioners**.

Friday evening: the role of pharmacy museums. Saturday morning: Short papers on pioneers of any aspect of pharmacy practice or the techniques or medicines they introduced. Saturday afternoon: Visit to Botanic Garden of Wales. Sunday: After AGM, a discussion on pharmacy practice 30/40 years ago, led by four speakers from community, independent and multiple, hospital and industrial practice. Think back to what you did during your FIRST YEAR of practice as a pharmacist and make a few notes to contribute to the discussion. We hope to record the discussion but please leave your dated (anonymous if you wish) notes with the organiser for a detailed report for the *Historian.*

As in 2009, Saturday evening dinner will be enlivened by *you* telling your favourite pharmaceutical or medical joke. Full details of the conference and application forms will be sent out in January 2010.

Editorial

The Future Museum and Library of the Royal Pharmaceutical Society

This issue (pp 64-66) contains further information on the changes in progress or being planned at the Royal Pharmaceutical Society at Lambeth. Recent visitors will have noted that the excellent history displays in the public areas are still in place, but that what had been the Library on the mezzanine floor has been replaced by a secure open-plan office occupied by the forerunners of the forthcoming regulatory body – the General Pharmaceutical Council.

What remains of the Library is a small room fitted with terminals and immediate access to a few essential references, such as the Registers, the *Pharmaceutical Journal* and *Chemist and Druggist* in what was the lower library in the basement.

The Royal Pharmaceutical Society has had to make difficult decisions about its future without knowing what level of support and income it will receive from pharmacists when it becomes a voluntary body sometime in 2010, but these changes to the facilities have scarcely been advertised to its members. A few of those with an interest in and knowledge of the history of pharmacy and the standing of the Pharmaceutical Society as a learned and professional body have made their concerns known in letters to the *Pharmaceutical Journa*l, as has the committee of the BSHP.

It is to be hoped that the proposed culling of print material from the period between 1860 and 1990 will be done knowledgably and sensitively, as it covers the period of the greatest expansion ever in the knowledge and discovery of new drugs, and the development of new sciences. This *Historian* contains two papers – one old, one recent – that illustrate the value of retaining material that may be needed in the future.

We hope that pharmacists will support the new Society in sufficient numbers and that the new Assembly composed of experienced pharmacists will have a greater regard to safeguarding their heritage.

Ainley Wade

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A Chronological Outline of the History of the *Poudre des Chartreux*, or Carthusian Powder, or Mineral Kermes: Part Two

Patrizia Catellani and Renzo Console

Continued from *Pharmaceutical Historian* 2009; 39 (3): 42-48.

7. Louis Lémery Regards His Father as the Inventor of the Best *Poudre des Chartreux*

Louis Lémery, first son of the famous chemist Nicolas, was born in 1677 in Paris, where later he received his education and went on to start work. He obtained a degree in medicine in 1698 and in 1700 became a member of the Académie Royale des Sciences as *élève botaniste*. In 1702 he published his only book, the *Traité des Aliments*. He also wrote many memoirs for the Académie and was appointed as the teacher of chemistry at the Jardin Royal des Plantes. Then he became a physician at the Hôtel-Dieu. Later he was promoted to *chimiste associé* at the Académie and in 1715 succeeded his father as *chimiste pensionnaire*. Louis died in 1743.

Having heard that the surgeon de la Ligerie had just published his pamphlet on the *Poudre des Chartreux* under the King's patronage (as we have seen in the first part of this article), Louis decided to write a memoir in 1720 for the Academy on that subject, and presented it on 12th November 1721. This memoir is still the most comprehensive document on the early history of the remedy.

Louis stated that the main purpose of his memoir, entitled *Observation Historique et Médicinale sur une Préparation d'Antimoine, Appellée Communément Poudre des Chartreux, ou Kermès Minéral*, was to prove that his late father was the real inventor of the best *Poudre des Chartreux*. He also remarked that Nicolas had been the first to recommend it specifically for chest diseases, scabies and leprosy, and not as a universal panacea.

Louis's memoir is long and is not divided into chapters. However it is possible to identify its main subjects, i.e.: how the glory of a discovery does not always go to the discoverer; the first success of the Powder and the origin of its name; why and how the true remedy was made known to the public; Nicolas Lémery's preparation; Louis's appraisal of Glauber; where Mr la Ligerie found his formula; how Nicolas discovered the future Carthusian Powder; and finally Louis's own conclusions.

Mr de la Ligerie never mentioned in his pamphlet how he had first learnt how to prepare the remedy. However Louis was the first to write – in this memoire – that la Ligerie had told Simon, who in turn had told Louis, how the formula had apparently come from Glauber. Louis believed in Simon's good faith but not in la Ligerie's story:[1]

> Those who have discovered a good remedy are not always given the glory of making it known to the public and of receiving all the recognition that they deserve. [...] This is roughly what has happened as regards the preparation of Antimony that interests us. It has not been called Carthusian Powder because it was discovered by the Carthusian friar Simon. He has always acknowledged with maximum sincerity that he had got it from Mr de la Ligerie, who had declared that it had come to him from Mr de Chastenay, Royal Lieutenant of Landau, who had learnt how to prepare it from a German apothecary who had been Glauber's pupil. From which one can see [...] that Mr. de la Ligerie cannot have so much right to [own] this powder as perhaps one could imagine, because he is not its author at all.

Then Louis tells the story of the early great successes of the Powder in the hands of the Carthusians:[2]

> On 17th January [...] 1714 the Carthusian friar Dominique was struck by a great fluxion of the chest that was worsening continuously, in spite of all the known remedies [...], had brought the patient to a desperate state. Brother Simon urgently asked [...] for permission to be allowed to give him the new remedy that he had acquired; and that worked so perfectly, so that the friar Dominique found himself healed, with great astonishment of the assistants.
>
> [...] Just the simple rumour [of the excellence of this remedy] gave it an astonishing popularity: and because the healed patient was a Carthusian, and that he was [healed] by means of a particular remedy given by another Carthusian, all who [...] later wanted to use it, looked for it from the Carthusians; which caused it to be called Powder of the Carthusians.

Louis has also explained the purpose and the circumstances of the publication of the remedy:[3]

> Because the supposed author of this remedy was not convinced yet that his secret should be unveiled, or perhaps because Mr de la Ligerie had not yet published the preparation of his remedy, the public was not certain yet that the knowledge of this preparation had been fully acquired. [...] This doubt had made someone say and also believe that they had perceived a notable difference in the effects between the remedy prepared by brother Simon or by Mr de la Ligerie, and the one that had been prepared by other operators. [...] This difference in the effects was only due to the imagination of those who claimed to have perceived it.
>
> [...] The uncertainty that could exist about the true preparation of this remedy did not last long thanks to the liberality of the King [...]. Mr de la Ligerie was approached to have the desired clarification.
>
> [...] In any case, on 20th September 1720 Mr de la Ligerie had a text printed, where he reveals the method for preparing his remedy.

Soon after what we have seen above, Louis went on to express his certainty that the remedy described by la Ligerie had in reality been discovered by his father Nicolas Lémery. Louis wanted to prove that la Ligerie could not have seen Glauber's text, and therefore he had plagiarised Nicolas's treatise:[4]

> When reading the text where Mr de la Ligerie seems to attribute the remedy to Glauber, [...] we can see not only

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that someone had been perfectly able to find and perform the process of this remedy, [...] but also that Mr de la Ligerie is not the only one who has published that remedy after Glauber, [...] and that the first that I know to have given to the public the best, easiest and most general method for preparing it, and to have indicated the kinds of illness for which it is most appropriate, [...] and all of this without having borrowed anything from anyone, as I am going to prove, is certainly my late Father, in his Treatise of Antimony that was read entirely [...] at this Assembly.[5] [...] All these readings or these parts of the task [...] have been assembled [...] in a particular body of work, [...] that is a kind of supplement of the Memoirs of the Academy. As a consequence this work belongs to this Company; it has all rights over the interesting and useful discoveries that it may contain, and among which we can find the remedy that we are concerning ourselves with.[6] For this reason I have sought to claim it in some way, and to let the public know that they did not need Mr de la Ligerie's text in order to be perfectly informed [...] about the real description of the remedy and of its uses.

According to Louis, Glauber was a typical example of a chemist whose descriptions were obscure. Those who were not used to his language would have had difficulties in finding and deciphering the preparation of his remedy which came before the Carthusian Powder. This is what Louis wrote:[7]

> It is certain that [the remedy] has been described by Glauber; and it is also possible to believe that he was its first inventor. In any case I do not know anyone had talked about it before him; but we have to acknowledge that having given it to the public in different treatises, he has frequently used obscure expressions, and has tried in that way to be poorly understood, so that the comprehension of what he wanted to say almost deserves the name of discovery [...]; and in reality, what he could have called, naturally and like anybody else, nitre fixed by charcoal and reduced into a liquid, is called by him his universal menstruum, or his pretended Mercury of the Philosophers [...].
>
> Secondly, because the word antimony was too well known, he designates this mineral by the term of first essence of gold.
>
> Finally, he also employs spirit of wine, that he deliberately avoids to call in that way, for the reasons mentioned before, but he calls it a dissolving wine, *Vinum solvens*.

As we have seen, in this part of his memoir Louis wants to emphasise the alleged intentional obscurity of Glauber's language. However Glauber had used 'obscure' terms like 'universal menstruum', 'Mercury of the Philosophers', 'first essence of gold' and '*Vinum solvens*' only in other treatises, and not in the one describing the actual preparation of his Universal Panacea of Antimony. So why would he have wanted to be intentionally obscure in his other treatises?

These are Louis's comments on the fact that Mr la Ligerie's pamphlet can give the wrong impression that the formula and preparation described there come from one of Glauber's works:[8]

> According to the first few words of this text that present the remedy under the pompous title of *Alkermes*, or *Aurifique minéral*, in the fashion of Glauber, not only would it appear that he had known that this remedy was from Glauber, but one would think that he is about to give in his text the entire sequence of the process that Glauber has had followed to make his remedy; [...] but he, differently from Glauber, does not use the spirit of wine at all. [...]
>
> It is reasonable to believe that Mr de la Ligerie has never read the method for preparing the [...] remedy in a treatise by Glauber entitled *Miraculum Mundi* or in any others, and that as a consequence did not know that his remedy was different from the one by the other author; because if he had known that, he would have written so in his text, or at least he would not have written at the beginning of this text that he would give the remedy in the fashion of Glauber. [...] In any case, it is certain that the preparation reported by Mr de la Ligerie is much faster, easier and less laborious than the one by Glauber.

We have seen how Nicolas Lémery had described this substance and what therapeutic benefits it could, in his view, give. His son Louis believed he had inevitably discovered it as a result of his countless attempts to make antimony react with other substances, as meticulously documented in his *Traité*. He was also sure that his father had never read Glauber's description. This is how Louis expresses his thoughts:[9]

> In the year 1707, i.e. thirteen years before Mr de la Ligerie had made his secret public, and seven years before he had communicated it to brother Simon, my Father had published the same remedy, made precisely in the same way, in his Treatise of Antimony; because he, unlike Glauber, does not employ the spirit of wine at all to extract the parts of antimony impregnating the alkaline liquid. [...] In conclusion, the process reported by Mr de la Ligerie is so similar [...] to the one described in my Father's book, that one could almost say that it is the source from which Mr de la Ligerie has borrowed his own.

Immediately before summarising his conclusions Louis writes:[10]

> I am finishing with a comment that the interest I naturally have in anything concerning my Father does not allow me to avoid: that is, although Glauber published the mineral Kermes before him, [my Father] has not discovered it any less than that Author, and even if nobody had ever discovered or described it before, nonetheless the remedy could be found in his Treatise of Antimony. [...] The History of the Academy of the year 1699 reports that in that year my Father undertook a great work on Antimony which he intended to [...] perform in all possible ways, and by combining it with all other matters that [...] could give hope of some important discovery, either purely original, or [producing] useful remedies. [...] It easy to see that my Father has well kept his promise with the prodigious multitude of experiments contained in this book.

Louis concludes his memoir by giving three 'proofs' that his father owed the discovery of Kermes only to his own project: the minute and exhaustive method followed in his experiments (that would inevitably

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make him find this substance); the fact that he had not taken the use of the spirit of wine from Glauber (by not employing it at all); and the use of the remedy for limited and very specific purposes (while everybody else before him had regarded it as a universal remedy). These are his words:[11]

> My Father's project required [...] that he should use [...] the different types of known liquids [...] in order to make those liquids act on Antimony [...]. So he was obliged to do what he did; that is [also] [...] to mix [...] alkaline [...] liquids with Antimony. Therefore he could not have been able to make them react [...] without soon becoming aware that they were extracting from this mineral a red tincture, from which a powder of the same colour was then precipitating. The discovery of this powder is therefore a necessary result of the process to which his project had led him.
>
> [...] A second proof of the fact that my Father owed the discovery of Kermes only to his project, and not to Glauber at all, nor to anybody else, is the different process that he followed, and that this project was obliging him to follow naturally.
>
> [...] Finally, the thing that confirms again that my Father only talks following his own [thoughts] in all that concerns this project, is how he expresses himself about the virtues [of this powder]. [...] He does not say at all, unlike all others, that this is a universal remedy; he is satisfied by saying what his chemical experience and his medical observation have taught him. [...] And as regards the illnesses for which it is particularly suitable, he mentions those of the chest, which really are the illnesses where the experience has shown us the greatest effects of this remedy.

Louis Lémery's memoir impressed several authors and seems to have achieved its desired effects. For example Antoine Baumé, a pharmacist and chemist well known in Paris and himself a member of the Royal Academy of France, totally supported Louis's views. He did so in his *Chymie Expérimentale et Raisonnée* of 1773, where he rejected Mr de la Ligerie's method and adopted Nicolas Lemery's version.

However it is impossible to prove beyond reasonable doubt that all of Louis's opinions were correct. For example, Louis did not believe in the way Mr de La Ligerie had explained how he had indirectly received the formula of Mineral Kermes, nor that he could have possibly read it in one of Glauber's works. On the other hand Louis believed that his father had not seen any of the works where earlier authors (including Glauber) had described the preparation of similar powders. Just as a matter of personal opinion, we tend to believe that Nicolas Lémery must have had books of such earlier authors available in his private library, that la Ligerie had largely invented his story, and that he had consulted some books to create a suitable formula.

8. Claude-Joseph Geoffroy's Memoirs on Mineral Kermes

Like the two Lémerys (father and son), Claude-Joseph Geoffroy, called '*le cadet*', was a member of the Académie Royale des Sciences. He always lived in Paris, where had been born in 1685 and died in 1752. At the Academy he was *élève botaniste* (from 1707), *associé botaniste* (from 1711), *associé chimiste* (from 1715) and *pensionnaire chimiste* (from 1723).

Geoffroy did not write treatises, but many of his memoirs read at the Académie were published. Those about Mineral Kermes were presented in 1734 and 1735. He only referred to Nicolas Lémery's *Traité de l'Antimoine* of 1707 and did not mention Louis's memoire of 1720 that we have just analysed in the preceding section.

As regards Mineral Kermes, Geoffroy decided to continue and expand Nicolas Lémery's experiments on what they were calling Sulphur of Antimony at the time and is called antimony sulphide today. For Geoffroy, Sulphur of Antimony and Mineral Kermes were the same substance.

However today – as we have mentioned in the first part of this article – we know that there are two different antimony sulphides (Sb_2S_3 and Sb_2S_5). Therefore the remedy called Mineral Kermes is not regarded by modern chemists as a single substance, but as a mixture of the two (and with an uncertain degree of hydration).

Geoffroy wanted to understand the nature of the substance better – a substance that Lémery had produced almost by chance when he was using the very detailed method that he had adopted for his *Traité de l'Antimoine*.

Geoffroy was not satisfied because his predecessors had not attempted to explain what exactly produced the emetic quality of the substance. He also wanted to know whether and how it would be possible to produce a substance with the same properties more simply.

Geoffroy's memoirs which we are referring to are entitled *Mémoire sur l'Éméticité de l'Antimoine, sur le Tartre Émétique, et sur le Kermès Minéral* (1734), *Suite de l'Examen du Kermès Minéral* (1735) and *Dernière Partie du Seconde Mémoire sur le Kermès; Sa Préparation par la Fonte* (1735).

At the beginning of the final part of the first of these memoirs Geoffroy explains the preparation of Mineral Kermes published by order of the King in 1720 so that the knowledge of such a useful substance could become generally available:[12]

> This preparation [...] is done by boiling Antimony in rain water strengthened with the liquid of nitre fixed by means of charcoal, which is Glauber's alkaest. After filtering the liquid when it is still hot, a powder precipitates, which, once well dulcified, is the remedy that we are dealing with.

Immediately afterwards Geoffroy explains the experiments that he has done to clarify the true nature of 'Sulphur of Antimony'. Having described a long series of experiments made on the residues of Kermes after burning it, Geoffroy summarises his two conclusions. He had found that antimony was emetic because it contained metallic earth; that Kermes could

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be rectified and made less emetic; and that it could be replaced by simple antimony:[13]

> 1°. The emetic nature of Antimony is in its vitrifiable metallic earth (which chemists already knew). The emetic Tartar makes one vomit just because it is charged with thick particles of such an earth. By reducing it by means of the black flux,[14] one can see how much it is emetic.
>
> 2 °. Kermes is a *hepar sulphuris*[15] which has dissolved a portion of that metallic earth, but more finely than the acid of Tartar would have done. Kermes can be rectified to make it simply dissolving and diaphoretic. Finally, Kermes can be replaced by a fine powder of Antimony.

The following year Geoffroy thought he had not examined the preparation of antimony sufficiently, simply because his first memoir did not contain a sufficient analysis of Mineral Kermes, and through new experiments he hoped to be able to prove that the substance obtained using acids and the one obtained through alkalis had similar effects. He commented:[16]

> Although Antimony has been analysed by a capable hand,[17] it can still provide some facts which, if they are observed well, will confirm what the late Mr Lémery had already published; and then the chemical analysis of this mineral will be more complete.[18]

However, at the end of the second part of the same memoir Geoffroy seems happy with the results he obtained in order to confirm the results described by Nicolas Lémery in his treatise. Geoffroy concluded that Lémery's remedy should have continued to be used because it was simple; and that Geoffroy himself had found other different compounds of antimony that could usefully replace the common Mineral Kermes:[19]

> Mr Lémery had made several experiments with these magisteries[20] and I am surprised that their use has not continued in hospitals and villages, where this remedy, which is cheap and easy to prepare, could replace many antimonial remedies more difficult to prepare. I have observed several times that the precipitate of Antimony made with spirit of wine, having been dulcified with some boiling water, purges and produces vomiting like Kermes in the dose of three or four grains; and that the one made with regal Water,[21] having been washed equally well, purges the intestine with the same dose, and if administered in the dose of one grain it acts as a diaphoretic. It has been swallowed much more easily than others which caused disgust and were more voluminous.

9. From *Poudre des Chartreux* to Mineral Kermes

After Geoffroy's memoirs that we have just seen, no more discoveries were made on the Carthusian Powder or Mineral Kermes for some time. Many authors continued to call the remedy *Poudre des Chartreux* and to refer to Glauber, Nicolas Lémery and Geoffroy as those who had produced the most important information on the subject.

Interest in the remedy, later always called Mineral Kermes, was revived by new studies performed by younger authors like Cluzel in France and the famous Jöns Jacob Berzelius in Sweden. At that point the subject of Mineral Kermes, earlier almost entirely debated within France, became more international.

10. Mineral Kermes Explained by 19th Century Authors

The majority of chemistry, pharmacy and therapy books published in the 19th century still contained references to the use of antimony for therapeutic purposes, and the antimonial substance mentioned most often was Mineral Kermes. Its internal use was frequently recommended for the treatment of pneumonia and pleurisy. However it was no longer used for the other purposes mentioned earlier in this article, and definitely not as a panacea against a broad range of illnesses.

The name Carthusian Powder was still mentioned just for historical reference, but was no longer used (probably because did not sound sufficiently scientific) and the name Mineral Kermes was generally adopted. This second name refers to the similarity in colour between that medicinal powder and the one obtained from the insect kermes (*Coccus ilicis*) and used as a dye. There is nothing else in common from a chemical perspective.

The authors focused on the improvement of the chemical methods for obtaining the powder, on which methods produced the best quality powder, on its therapeutic uses and on collecting the knowledge obtained until then.

Most of the later authors, using improved chemical knowledge which had recently become available, appeared to be more interested in the analysis of the chemical composition of Mineral Kermes than in explaining the methods for its preparation.

We will now quote some examples found in books and journals of that period, choosing for preference texts originally published in English. Our examples are in chronological order of publication, starting from the early 19th century.

Antoine-François de Fourcroy (1755-1809) was a French chemist and physician, and a member of the Académie Royale des Sciences from 1785.[22] He describes the success of two chemical methods of obtaining Mineral Kermes in the chapter on antimony of his *A General System of Chemical Knowledge* (1804). The apothecaries preferred them because of the greater efficiency of both processes in comparison with la Ligerie's method:[23]

> The history and the examination of the processes of the preparation [of *Kermes mineral* and *sulphur auratum*] ought here to precede the examination of their nature. In the first years of the eighteenth century, a person of the name of Simon, a brother apothecary amongst the Chartreux of Paris, employed this medicine under the name of *Kermes Mineral*, and gave it considerable celebrity by the cures which he asserted he had performed with it amongst the religious of that convent. This is the reason why this compound was first called, for some time, the *Poudre des Chartreux*. Though the discovery of this medicine was really owing to Glauber,

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Figure 1. Antoine-François de Fourcroy wrote extensively about Mineral Kermes in several chemical texts. Wellcome Library, London.

who prepared it with the sulphuret of antimony and the liquor of nitre fixed by the charcoal; though the invention may also be assigned to Lémery, who had described it under another name in his *Treatise concerning Antimony*, it was introduced into the world as a new remedy. Brother Simon said he had his composition from a surgeon of the name of La Ligerie. [...] Dodart, first Physician to the King, applied to La Ligerie to publish the receipt of the *Kermes Mineral*; and it was actually made public in the year 1720. The process [was] much inferior to that of Lemery. [...] This process, which is very ill-contrived, and very tedious, affords but very little kermes. [...] Accordingly, the apothecaries never followed it, when this compound became sufficiently known to be a very common medicine.

Lemery the younger, having claimed the discovery of this antimonial preparation, for his father, from the Academy of Sciences, his process was generally adopted and practised in the laboratories of pharmacy, where the kermes mineral was, and still is prepared, in one or other of the two following ways. In the dry way, are taken sixteen parts of sulphuret of antimony, eight parts of alkali or tartar, and one part of sulphur; these three substances are well mixed by trituration; they are fused in a crucible; the mass when well fused, is poured into an iron mortar; it is coarsely pulverised when it has cooled; then boiled in a sufficient quantity of water, and the liquor being filtered through grey paper, passes clear and with a slight orange tinge, with scarcely any other smell than that of the lixivium; in proportion as it cools there separates from it a powder of a beautiful brown-red colour, or kermes, in great abundance, which is first washed in cold water, and afterwards in boiling water, then well dried, pulverised, and passed through a silk sieve.

The kermes, in the humid way, is prepared in the following manner. In twenty parts of water are boiled six parts of fixed alkali, the pure pot-ash of commerce; into the boiling liquor is thrown about one twentieth part of the weight of the alkali of pulverized sulphuret of antimony; this mixture is well agitated, it is suffered to boil for seven or eight minutes, and filtered; the liquor deposits in cooling a large quantity of red powder, or kermes, which is well washed. By either of these processes, nearly three quarters of the weight of the sulphuret of antimony employed is obtained in kermes.[24]

In 1807 the young French chemist simply known as **Cluzel** '*jeune*', '*le jeune*' or '*neveu*' won the prize for the best essay on Mineral Kermes organised by the Société de Pharmacie de Paris. His essay, published in the journal *Annales de Chimie* and also translated soon into other languages, immediately raised great interest among chemists. His method for the preparation of Kermes was judged as the best by many of them and later included in many treatises of chemistry and pharmacy. Unfortunately Cluzel died soon afterwards, before he could develop his career further.[25]

The theme of the prize won by Cluzel was:[26]

> Does a procedure exist to obtain a kermes constantly of the same colour and of the same nature? And what are the reasons of the differences shown by kermes prepared many times successively with the same procedure?

In his response to these questions Cluzel first describes the common method for preparing Mineral Kermes, then describes a simplified method that produces the same results, and finally proposes his own improved method that removes the drawbacks of the traditional one.

As we can see, Cluzel's explanations were very precise and his comments were very meaningful to the chemists of the early 19th century. Many of the authors who then reported and discussed Cluzel's method for preparing Mineral Kermes did not regard it as very efficient, but in their view, with his method, one could obtain the most beautiful Kermes from the point of view of the colour and the fineness of the powder:[27]

> According to the usual process, 16 parts of sulphuret of antimony grossly powdered, and 4 of nitre fixed by charcoal, are boiled for two hours, and the solution filtered, and laid aside; 3 parts of fixed nitre, and 20 of water, are then added to the residuum, boiled, and the solution separated as before; after which the residuum is again treated with 2 parts of fixed nitre, and 20 of water. The kermes is deposited from the solutions, washed with cold water until it becomes insipid, and then dried by a gentle heat. But the kermes thus obtained, has not the purplish-brown colour, nor velvety appearance, which is so much desired by apothecaries. The residuum being examined, appeared to be merely sulphuret of antimony, and might of course be employed in the preparation of a fresh parcel of kermes.
>
> In order, therefore, to exhaust the antimony, 120 grammes of antimony were pulverized and treated repeatedly with 30 gr[ams]. of American pearl-ashes,[28] and 300 gr[ams]. of filtered water. Each time fresh pearl-ashes and water were added, the mixture boiled for half an hour, then filtered into a warm vessel, left to stand for 24 hours, again filtered, the kermes washed,

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and dried on a stove by a heat of 25° Cels. (or 77° Fahr.). The operation was repeated 95 times. Kermes was obtained in the first 91. The 92nd yielded only a few atoms of it, and the three last none at all.

A single application of a sufficient quantity of alkali is able to perform what, in the old method, required so much labour; for on boiling 16 grams of sulphuret of antimony with 360 gr. of American pearl-ashes, and 4000 gr[ams]. of filtered water, for half an hour, and treating the solution in the usual way, scarce any residuum was left.

All the preceding specimens of kermes were pale, and not velvety.

Having discovered the proportion of potash, the quantity of the water was varied; when 2000, or 1000 gr. were employed, the kermes was heavier, and duller, so as to resemble powdered bricks. Six, 8 and 10 thousand gr. yielded very pale kermes. Nevertheless, in manufacturing kermes in large quantities, even 4000 gr. of water would be too large; it being only requisite there should be a sufficient quantity of liquid for the kermes to be slowly deposited, and that no crystallization should take place, as otherwise the precipitate would lose some of its colour by the extreme minuteness of its particles.

In 1810 **John Murray**, 'lecturer on chemistry, and on materia medica and pharmacy' at the University of Edinburgh, published a textbook entitled *A System of Materia Medica and Pharmacy*. We can find the following explanations in the chapter on emetics. Murray's very concise description of the method appears to be very similar to a summary of the one devised by Cluzel three years earlier:[29]

Sulphurettum Antimonii Praecipitatum. – This name, obviously incorrect, is given by the London and Edinburgh Colleges to a preparation formerly named Sulphur Auratum Antimonii. The Dublin College have named it Sulphur Antimoniatum Fuscum. It is prepared by boiling sulphuret of antimony with a solution of potash, and adding to the filtered liquor, sulphuric acid, while any precipitate is thrown down. This precipitate is of a reddish yellow colour; it is a combination of oxide of antimony with sulphuretted hydrogen and sulphur. In a dose from 5 to 10 grains, it produces the usual effects of antimonials, and has been employed as a remedy in fever; but from the uncertainty of its operation, it is discarded from practice.

The preparation named Kermes Mineral, and which is used on the continent, is the precipitate that subsides on cooling from the liquor formed by the boiling a solution of potash on sulphuret of antimony; it differs from the former in containing less sulphur, and appears indeed to be merely a combination of oxide of antimony with sulphuretted hydrogen. It is given in a similar dose.

Although Murray says that Mineral Kermes is used on the continent, he does not mention any particular author or text where the preparation is described.

By the second decade of the 19th century Mineral Kermes had become important enough to be included in general and scientific encyclopaedias, like the large *Encyclopaedia Perthensis* published for the first time in Perth (Scotland). In the 12th volume of the second edition published in Edinburgh in 1816 we find a very detailed article on *Kermes Mineral*.[30] It is mainly a historical account of the origin and development of that substance, from Glauber and Lémery to la Ligerie, Geoffroy, Baumé and Chaptal.[31] Their methods for the preparation of Kermes and the nature of the product are explained in detail, but some of the more recent developments (like Cluzel's essay) are not covered.

In 1821 **Samuel Frederick Gray**, 'lecturer on the materia medica, pharmaceutical chemistry and botany', published *A Supplement to the Pharmacopoeia*, 'including not only the drugs and compounds which are used by practitioners of medicine, but also those that are sold by chemists, druggists, and herbalists, for other purposes'. Six preparations are described very concisely in line with the style of the book, that is intended as a reference manual. The recipes mentioned are the most common, and the names of their authors are shown in five cases. At the end we see that in Gray's view Mineral Kermes was only used abroad, while in Britain James's powder was used instead.

Figure 2. Samuel Frederick Gray described the six best known preparations of Mineral Kermes in the early 19th century. Wellcome Library, London.

This is all that we find on the subject of Mineral Kermes:[32]

KERMES MINERAL. Crude antimony, finely ground, 4 lb, kali ppm [praecipitatum]. 1 lb, soft water 2 gall.; boil for half an hour, filter through paper supported by linen, into deep pans previously warmed; let it cool very slowly; the

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kermes settles as it cools: the antimony left upon the filter may be boiled again several times with fresh kali water. Deyeux, the usual process.

2. Crude antimony 1 oz., aqua kali 6 lb. Baumé.

3. Crude antimony 1 lb, aqua kali 6 lb. Chaptal.

4. Crude antimony 1 lb, natron ppm. 3 lb, water q. p. Dizé. Proceeding as before.

5. Prepared antimony ½ oz., natron ppm. 10 oz., distilled water a gallon; boil for half an hour, filter, let it settle, wash the precipitate with cold water which has been recently boiled, dry the precipitate by a heat of 90 deg. Fahr. folded up in glazed paper to keep the air and light from it: produces a very dark crimson powder, of a smooth velvety appearance. Cluzel: obtained the prize given by the Paris society of apothecaries.

6. Crude antimony 16 oz., kali ppm. 8 oz., flowers of sulphur 1 oz.: mix, melt together, pour out; when cold, reduce the mass to powder and boil in water q. s.; filter while hot; the kermes precipitates as the water cools, and is to be well washed.

This preparation occupies in foreign practice the place of our James's powder, in doses of gr. ½–iij, as a diaphoretic, cathartic, and emetic.

The Swedish baron **Jöns Jacob Berzelius** (1779-1848) was one of the most distinguished chemists of his time and is now regarded as one of the creators of modern chemistry. He was a correspondent of the Académie Royale des Sciences of Paris from 1816 and *associé étranger* from 1822. He described Mineral Kermes in his *Lärbok i Kemien* ('textbook of chemistry'), published in 5 volumes from 1808 to 1828 and also translated later into other European languages.

Figure 3. The distinguished Swedish chemist Jöns Jacob Berzelius created one of the best preparations of Mineral Kermes and explained it.

Berzelius proposed the following method for the preparation of Mineral Kermes. As we can see, he was very precise and meticulous in his explanation of the details and purposes of each step:[33]

The following method is the best for preparing [...] this compound [known in pharmacy under the name of *mineral kermes*]: take one part of pure potassium carbonate, mix it well with two parts and two thirds of antimony sulphide reduced into a fine powder; place the mixture in a crucible, cover it, and heat it slowly, until the mass drips calmly, without boiling. In such case part of the antimony oxidises due to the alkali; potassium antimonite is produced, and at the same time also a combination of antimony oxide and sulphite about which I am soon going to talk longer; at the same time the sulphur, which earlier was united with the portion of antimony that has oxidised, combines with potassium, to create a potassium sulphide, which, combining with the remainder of the antimony sulphide used, produces a sulphur-salt, in which antimony retains three times more sulphur than potassium sulphide. This mass is very easy to melt, and solidifies into a substance of liver-like colour, called *liver of antimony*, which attracts the moisture of the air. Water decomposes the sulphur-salt, and gets loaded with potassium sulphide, which dissolves a greater portion of antimony sulphide as the liquid is more concentrated, and that is stronger at boiling temperature than when it is cold. It is for this reason that we need to boil the mass with water, and pour it boiling on a filter, previously heated at 100 degrees. The liquid is clear, little coloured or not at all, but it becomes cloudy almost instantly, and leaves a deposit of antimony sulphide or kermes, in the shape of delicate brown flakes, which are then collected on another filter in order to wash them. By letting the liquid, from which kermes has precipitated, boil with the undissolved residue, it takes a new portion of it, which is again deposited when cooled, and one can continue in this way until only the compound of antimony oxide and sulphide that cannot be dissolved in this liquid is left. Antimony sulphide thus prepared in the humid way, or mineral kermes of the pharmacies, is employed very often in therapy as an internal medicine.

At this point Berzelius continues with a description of many additional experiments that have the purpose of explaining better the nature and characteristics of the compound obtained with his method. Then he describes some different methods proposed by other authors for producing the same substance, including Cluzel's method (that we have seen above), which he judges as the least laborious. He also adds that Nicolas Lémery had already prepared Mineral Kermes in the humid way.

The American physician **John Eberle**, member of academies and medical societies, published several editions of *A Treatise of the Materia Medica and Therapeutics* in the first half of the 19th century. In the chapter on antimony he included a short section on Mineral Kermes, where he quoted the descriptions of the nature of this product given by several recent authors. His focus was on an accurate analysis of the

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chemical nature of Mineral Kermes and not on the methods of preparing it.

We find the following in his treatise:[34]

Kermes Mineral. Oxy-sulphuret of Antimony. – This preparation was formerly thought to consist of a combination of sulphuretted hydrogen and protoxide of antimony. According to Gay Lussac's analysis, however, it is a compound of the sulphuret and protoxide of antimony. Berzelius regards it as a union of sulphuret of antimony with a small portion of sulphuret of potassium; but the view taken of its chemical nature by Gay Lussac is now generally adopted as the most correct. When properly prepared, this article is in the form of a dark-brown powder, acquiring a much lighter tint when exposed, for some time, to air. With the assistance of heat, muriatic acid decomposes it readily and completely, disengaging hydro-sulphuric acid.

Kermes mineral was first employed as a medicinal agent in France, in the early part of the last century.

[...] The French and German physicians employ it frequently in the acute catarrhal and pneumonic affections, where the expectoration is scanty. I have myself often used it, in complaints of this kind, and sometimes with evident advantage. It is given in doses from a half to two grains, with a view to its diaphoretic and expectorant effects.

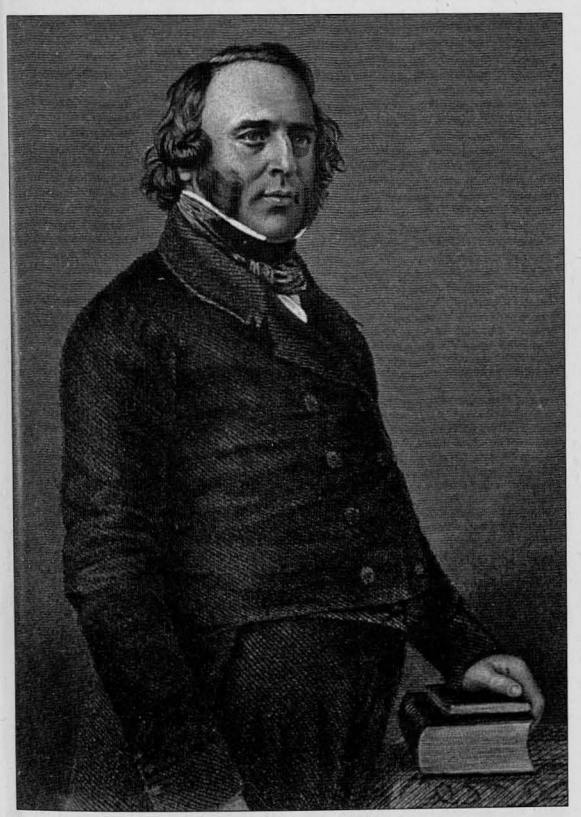

Figure 4. Jonathan Pereira wrote a comprehensive summary of what was known about Mineral Kermes in mid 19th century, using modern chemical notation. Wellcome Library, London.

The doctor and pharmacologist **Jonathan Pereira** (1804-1853), born in London, was a Fellow of the Royal Society, an examiner at the University of London and professor of materia medica at the College of the Pharmaceutical Society (1843-1853). He published several editions of his *The Elements of Materia Medica and Therapeutics*, where he included a detailed chapter on Mineral Kermes that is a comprehensive summary of what was known about that substance.[35]

For the preparation of Mineral Kermes the author wrote:

This is prepared both by the humid and by the dry way; and the French Codex gives directions for its preparation by both methods.

á. *By the humid way.* – This is directed to be prepared as follows: –

Take of Crystallized Carbonate of Soda 128 parts; Water 1280 parts; Sulphuret of Antimony 6 parts. Dissolve the carbonate of soda in the water, by the aid of heat, in a cast iron pan. Add the sulphuret of antimony, reduce to a fine powder, and boil the mixture for an hour, constantly stirring it with a wooden spatula: filter the boiling solution into an earthen pan previously heated, and containing a small quantity of very hot water. Let the solution cool as slowly as possible; collect the red powder which is deposited on a close cloth, and was on the filter with cold water. Press the washed powder, and dry it in a stove moderately heated. [...]

â. *By the dry way.* – The process of the French Codex for *kermes igne paratum* is as follows: –

Take of Sulphuret of Antimony 500 parts; Carbonate of Potash 1000 parts; and Sulphur, sublimed and washed, 30 parts. Carefully mix these three substances, and fuse in a Hessian crucible.[36] Pour the mass, while liquid, into an iron mortar, and, when cold, reduce it to powder. Then boil the powder into an iron pan, with 10000 parts of water, filter the boiling liquor, allow it to cool slowly, then decant it, and collect the kermes on a filter; wash it and dry it as already mentioned.

The quantity of kermes obtained by this process is greater, but less fine, than that procured by the preceding process; and it ought to be exclusively reserved for veterinary medicine.[37]

After the description of each preparation Pereira explains the theory of the process, where he uses the recent chemical notation with the symbols of the elements and the numbers of atoms to specify the products used and obtained in each step. Then Pereira describes the physical properties of Kermes:

Mineral kermes is an odourless, tasteless, brownish-red powder, insoluble both in water and in alcohol. Examined by the microscope, it is seen to consist of a reddish or brownish granular mass, which, when the kermes contains teroxide of antimony, is intermixed with acuminated prisms or small acicular[38] crystals of this substance.

Then Pereira reports the chemical composition of Mineral Kermes according to two different authors (Heinrich Rose and Justus Liebig):

According to Rose, kermes consists of amorphous tersulphuret of antimony, with the sulphantimoniate of

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either sodium or potassium. The formula for that prepared by boiling crude antimony with caustic potash, and washed for a short time only, consists of $2SbS_3$ + KS,SbS_5 + 2Aq. If the same kermes be washed for a short time, its formula is $9SbS_3$ + KS,SbS_5.

[...] Most chemists who have analyzed this substance have detected in it teroxide of antimony. Rose considers this an accidental admixture arising from an insufficient quantity of alkali to retain the teroxide in solution. Liebig, on the other hand, regards it as an essential constituent, and gives as the formula for kermes $2SbS_3$ + SbO_3.

After this Pereira describes the physiological effects of Mineral Kermes and finally states its uses and administration:

USES. – In England mineral kermes is scarcely employed; but in some parts of Europe, especially Italy and France, it is in frequent use.

Like emetic tartar, it has been administered with great benefit as a contra-stimulant or hyposthenic [...] in inflammatory diseases, especially pneumonia. The uncertainty of its operation is, however, a great drawback to its use; and even when it possesses activity, it is doubtful whether it has any advantages over emetic tartar. Some writers, however, assert that it is less irritating to the stomach and bowels: but assuming this to be true, it is probably referable to its inferior activity.

ADMINISTRATION. – Mineral kermes is given, in the form of powder or pill, in doses from half a grain to two or three grains.

Conclusion

The old Mineral Kermes or Carthusian Powder is now thought to have been an impure mixture of two different antimony sulphides – Sb_2S_3 and Sb_2S_5. It also contained some antimony oxide – Sb_2O_3. In some cases the sulphides contained crystallisation water in different proportions, depending on the process adopted for the preparation. The impurities were left in the product as the result of dissolving the antimony ore – not always carefully – with strong solvents.

We have achieved a chronological outline of the history of the chemical substance called initially Carthusian Powder and later Mineral Kermes. The period that we have tried to cover goes approximately from 1600 to 1850.

After the first half of the 19th century Mineral Kermes continued to be produced and used in medicine, especially to treat pneumonia and pleurisy, but mainly because nothing substantially better had yet been found.

Major improvements in the prevention and treatment of such lung diseases were only achieved with the advent of vaccination and antibiotics. On the other hand the medical use of antimony seems to have almost totally disappeared, as it is regarded as toxic, especially when taken internally.

Acknowledgement

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End Notes and References

1. Lémery L. *Observation Historique et Médicinale sur une Préparation d'Antimoine, Appellée Communément Poudre des Chartreux, ou Kermès Minéral*; in *Histoire de l'Académie Royale des Sciences - Année M.DCCXX*. Paris: Imprimerie Royale, 1722: 417-418.
2. Note 1: 419.
3. Note 1: 423-424.
4. However we may argue that proving this convincingly might be impossible. Note 1: 424-425.
5. We should remember that Louis is reading this text during an assembly of the Académie Royale des Sciences.
6. In practice Louis is saying that the King, having told la Ligerie to publish his pamphlet, has paid him for something that was already the property of his own Academy.
7. Note 1: 425-426.
8. Note 1: 427-428.
9. Note 1: 429.
10. Note 1: 433-434.
11. Note 1: 434-436.
12. We should also remember that prior to Louis Lémery's memoir even the King's physicians were not aware that Nicolas Lémery had published the preparation of a suitable substance years earlier. Geoffroy C.-J. Mémoire sur l'Éméticité de l'Antimoine, sur le Tartre Émétique, et sur le Kermès Minéral; in *Histoire de l'Académie Royale des Sciences - Année M.DCCXXXIV*. Paris: Imprimerie Royale, 1736: 424.
13. Note 12: 433-434.
14. Geoffroy uses the term *'flux noir'*, that is a mixture of potassium carbonate and charcoal which facilitates fusion.
15. Which means 'liver of sulphur'. It was called like this for its brownish red colour.
16. Geoffroy C.-J. Suite de l'Examen du Kermès Minéral - Dernière Partie du Seconde Mémoire sur le Kermès; Sa Préparation par la Fonte; in *Histoire de l'Académie Royale des Sciences - Année M.DCCXXXV*. Paris: Imprimerie Royale, 1738: 54.
17. Geoffroy means Nicolas Lémery in his *Traité de l'Antimoine*.
18. Following this statement there is a description of many experiments. We cannot describe them here.
19. Note 16: 325-326.
20. In pharmacology a 'magistery' was a salt obtained in the 'humid' way. Its chemical composition and its physical properties were determined by the way it was prepared.
21. Geoffroy writes 'eau-régale'. It was a strong solvent that in modern terms would be defined as a mixture of concentrated nitric and hydrochloric acids.
22. In 1795 he was also elected a *membre résidant* of the Institut National des Sciences et Arts. Although de Fourcroy was an earl, he had revolutionary ideas and was politically very active in the late 18th century. From the beginning of the Revolution he decided to call himself simply Fourcroy, omitting the aristocratic prefix 'de'. He published several chemistry treatises that were also translated into other languages.
23. Fourcroy A.-F. *A General System of Chemical Knowledge*. London: Cadell and Davies, Longman and Rees, G. and J. Robinson, and J. Walker, Vernon and Hood, Clarke and

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Sons, Cuthell and Martin, and Ogilvy and Son, and S. Bagster, 1804: Vol. 5, 334-337.

24. This text was later paraphrased very closely by Thomas Thomson, who however did not mention his source. Thomson T. *A System of Chemistry*. Edinburgh: Bell & Bradfute, 1810: Vol. 3, 392-393.

25. Despite many attempts, we have not been able yet to find further biographic information on Cluzel. It was not usual in France to specify the first name of authors mentioned in texts and therefore we do not know Cluzel's full name. The fact that he was called '*neveu*' ('nephew') may mean that he had a well known paternal uncle, who possibly was also a chemist. But we have not found any of his works in the catalogues of the major libraries.

26. *Journal de Médecine, Chirurgie, Pharmacie, etc.* Paris: Migneret, Méquignon l'aîné, 1807: Vol. 14, 399.

27. *Retrospect of Philosophical, Mechanical, Chemical, and Agricultural Discoveries*. London: The Proprietors and W. H. Wyatt, 1810: Vol. 5, 275-276.

28. Potassium carbonate.

29. Murray J. *A System of Materia Medica and Pharmacy*. Edinburgh and London: William Laing, J. Anderson, J. Bathgate, Brown & Crombie, and A. Black, and Longman, Hurst, Rees, & Orme, 1810: Vol. 1, 322-323.

30. *Encyclopaedia Perthensis; or, Universal Dictionary of the Arts, Sciences, Literature, &c.* Edinburgh: John Brown, 1816: Vol 12: 476-477.

31. Jean-Antoine Chaptal is not mentioned elsewhere in the present article, but he wrote an important textbook where we can find a detailed account of the history and nature of Mineral Kermes. Chaptal J.-A. *Élémens de Chimie*. Paris: Deterville, 1796: Vol. 2, 238-242.

32. Gray S. F. *A Supplement to the Pharmacopoeia: Being a Treatise on Pharmacology in General*. London: Thomas and George Underwood, 1821: 240-241.

33. Berzelius J. J. *Traité de Chimie*. Paris: Firmin Didot Fréres, Jean-Baptiste Baillière, 1830: Part 1, Vol. 2, 501-502.

34. Eberle J. *A Treatise of the Materia Medica and Therapeutics*. Philadelphia: Grigg & Elliot, 1834: Vol. 1, 65-66.

35. Pereira J. *The Elements of Materia Medica and Therapeutics*. Philadelphia: Blanchard & Lea, 1852: Vol. 1, 653-655.

36. A Hessian crucible was a type manufactured in the Hesse region of Germany. These crucibles were renowned for their ability to withstand very high temperatures and strong reagents.

37. At the beginning of his comments following this preparation, Pereira adds: 'This is Baumé's method of preparing kermes.'

38. 'Acicular' – needle-shaped.

Media and Medical Response to the Introduction of Prescription Charging in the National Health Service

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Summary

In April 2009 the National Health Service (NHS) prescription charge rose to £7.20 in England, whereas in Wales prescriptions have been free since 2007. This major difference has led to much controversy amongst the public, media and medical profession. This paper tries to identify the response of the media and medical profession to the introduction of prescription charging in the NHS. When established on July 5th 1948 the NHS provided free healthcare including prescriptions to the entire population of Britain. However, following concerns around finance, the Conservative government introduced a one shilling prescription charge in June 1952. Information gathered from newspapers, despite their differing readerships and political affiliations, revealed that the media generally accepted the charge with little opposition. In contrast, large debate and divisions arose amongst the medical profession, with huge volumes of literature being published on the issue. The London based British Medical Association opposed the charge as they felt doctors were not government tax collectors; whereas rural doctors became concerned that the charge would affect the doctor-patient relationship. This paper identifies that the introduction of the prescription charge, not only aroused debate in parliament, but caused a spectrum of views amongst lay and medical circles.

Introduction

> Now the honeymoon period was over; the relations between profession and state were strained because of shortage of money; and the NHS would have to undergo successive modifications in the next few years if it was not to fail. Perhaps the public saw the main benefit as not paying for medicine at the time of receiving it, and the public had run riot at the chemist's shop.[1]

The National Health Service (NHS) was established in 1948 by the Labour government, a hundred years after the first Public Health Act and was designed to provide a healthcare service, free at the point of delivery.[2] Since its creation the maintenance of the NHS has been a tremendous burden on the State. Within the first nine months the expenditure had reached £275.9 million, and questions were raised about overspending in the NHS.[3] By June 1952, four years The prescription charge has been previously described by Rivett and Webster, who highlight the intense parliamentary debate surrounding this amendment to the founding principles of the NHS. However, neither explored the reactions of those most affected by its introduction; the public and medical profession. This paper will identify what the media and medical response was to the prescription charge. Clearly, the passing of the charge was a major alteration to the original 1944

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White Paper, which set out the foundations of a 'free' national healthcare system. Therefore, one could envisage opposition to this proposal. However, the memories of an inefficient National Health Insurance scheme (which preceded the NHS) were still present. Thus, how did the media and medical profession respond?

Background

> On July 5 we start, together, the new National Health Service. It has not had an altogether trouble-free gestation! There have been understandable anxieties, inevitable in so great and novel an undertaking…On July 5 there is no reason why the whole of the doctor-patient relationship should not be freed from what most of us feel should be irrelevant to it, the money factor.
>
> *A. Bevan* (1948)[4]

In 1945, Labour Minister Aneurin Bevan, proposed a move to a healthcare service, free at the point of delivery. It was to be funded mainly from central taxation and National Insurance contribution, based on the Coalition's 1944 White Paper; *A National Health Service*. The proposal for the National Health Service (NHS) was received with 'spontaneous acclaim', with many feeling that they deserved a comprehensive health service following years of depression and war. The spirit of high expectations post war was seen as a catalyst in delivering a health system which was efficient and available to the entire population. It did not require a war to establish the 'inadequacies' of the existing health system, but 'did take the war to create the will to convert existing ideas and dissatisfactions into the reality' of the NHS.[6] On the 5th July 1948, the NHS became operational. As part of the Welfare State, it lay at the heart of the Labour government's plan to 'heal' war-torn Britain.

Although the 1944 White Paper was received favourably across the country, the birth of the NHS was anything but straightforward. The proposal came up against opposition from the British Medical Association (BMA);[7] who had been previously in conflict with the government before the conception of the NHS.[8] The BMA-led resistance against the creation of the NHS was almost identical to its objection to the 1911 National Health Insurance Bill. The BMA opposed the proposal of the NHS on the grounds of public interest and loss of doctors' independence.[9] After months of negotiations, in April 1948, Bevan won the backing of the medical profession, for which he later stated that he had 'stuffed their mouths with gold'.[10]

From the outset it was clear that spending would be a major concern for the success of the NHS, especially during the poor economic climate following years of war. The Beveridge Report highlighted that the overall cost of medical care would decrease following the start of the NHS, as people became healthier and required less treatment.[11] However, the actual cost increased dramatically:

> In 1948 it was becoming increasingly clear that expenditure was running well ahead of the estimates and that it would be necessary for the 1949/50 estimates to be substantially higher than originally anticipated.[12]

Bevan explained that these 'difficulties over expenditure' were due to high levels of demand, representing a back-log from the previous system, and problems with estimating costs for an entirely new service.[13]

To tackle the financial issue of overspending in the NHS, the government passed the NHS Amendment Act in 1949, which imposed charges on non-UK residents. Later the Labour government, which pioneered the creation of the NHS, introduced national dental and eye service charges. Initially the charges were justified 'as a means of restoring the service to priority groups', but later McNeil admitted that these steps 'would not have been undertaken without overriding economic necessity'.[14] At the same time, they also considered the possibility of introducing a prescription charge in Britain. However, this was abandoned as the government felt that certain individuals should be made exempt from the charge but there was no obvious solution for this to occur.

Following the Conservative's election victory in October 1951, they proceeded to increase the dental and eye charges. Finally in June 1952, the government introduced a prescription charge of one shilling [5p]. The Chancellor of the Exchequer announced that the new prescription charge would reduce expenditure within the service and create some £10 million in revenue. He stressed that the charge was in place to deter individuals from abusing the service and the resultant income was a bonus.[15] Bevan agreed and believed that the free medication was subject to misuse:

> I shudder to think of the ceaseless cascade of medicine which is pouring down British throats at the present time.[16]

When the charge was introduced in 1952, the average earnings of a male agricultural worker were 105 shillings [£5.25] per week and the prescription charge (of one shilling) could buy a loaf of bread and a pint of beer.[17][18] Using average earnings one shilling in 1952 is the equivalent to £3 today and therefore was less than half the cost of a prescription in 2009.[19]

Media Response

In this section the media's reaction to the prescription charge will be investigated. Even though the charge was introduced in June 1952, articles were published as early as March 1949, when the issue of prescription charging was first raised by the government. The four newspapers, *The Daily Mirror*, *The Daily Express*, *The Manchester Guardian* and *The Times*, were selected because of their differing readerships and political affiliations, and thus provide a comprehensive response from the media.

The Daily Mirror

The Daily Mirror, a British tabloid, was founded in 1903 and has been a consistent supporter of the Labour Party. Post World War II, the newspaper was aimed at the working class and dominated the daily market.[20] From as early as November 1949, articles were being published in the newspaper on the issue of charging in

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the NHS. The early articles highlighted the abuse of the health service by individuals requesting authorisation of 'handy things to have around the home'.[21] The newspaper portrayed a view very much in line with the Labour government, that free medication was being exploited by the population. However, following the announcement by the Chancellor of the Exchequer on the introduction of a prescription charge, *The Daily Mirror* adopted a 'neutral' viewpoint. This is evidenced by the fact that between February and May 1952, *The Daily Mirror* published twenty two articles, simply reporting the details of the parliamentary debate. None of these articles opposed the Conservative government's plan, as one would have expected from the newspaper's political leaning. However, this 'muted' response did not last long.

From May 1952, *The Daily Mirror* published articles describing the disadvantages of the prescription charge. An article published on 14th May 1952, reporting on the 'thoroughly wicked bill', was an important turning point in the newspaper's coverage of the charge.[22] This article highlighted the financial consequences of the charge on the working class, its mass readership. Furthermore, in June 1952, the newspaper conveyed the poor understanding of the charge amongst the working class and the fact that they were being punished by 'no fault' of their own.[23] The newspaper also acknowledged the difficulties for the chronically sick -- they 'could not do without drugs' and therefore should 'be freed of the charges'.[24] Thus, the newspaper no longer simply reported on the issue of prescription charging, but identified the growing problems affecting their readers.

The Daily Express

The Daily Express, a conservative tabloid newspaper, was founded at the turn of the twentieth century. It published far fewer articles in comparison to *The Daily Mirror* on the 1952 prescription charge; highlighting their support for the government. Generally the newspaper remained in favour of the charge but once it was introduced, the newspaper depicted the difficulties of the charge on deserving patients. An article entitled 'When a patient hasn't got a shilling', described the stress created once a prescription note was written in hospital.[25]

The Manchester Guardian

The Manchester Guardian was founded in 1821 with the intention of promoting liberal interest and campaigning against the Corn Laws in Manchester. Its name was changed to *The* Guardian in 1959. The editorial articles in *The Guardian* are to the left of the political spectrum and the majority of its readers are supporters of the Labour Party.[26] Even so, the newspaper supported the idea of a prescription charge being introduced by the Conservative government in 1952. *The Guardian* acknowledged the necessity of such charges and the benefit they would have on reducing 'crowded waiting rooms'.[27] Surprisingly, the paper even attacked the previous Labour government for 'dropping its proposal' because of 'administrative' difficulties and commended the step taken by the Conservatives.[28] In March 1952, the newspaper further illustrated its support for the government, as it highlighted the relative cost of the charge:

> You hear it from people who complain of prescription charges in the National Health Service...while every such family in the land spends £3 a week on drink, tobacco and gambling.[28]

In comparison with the two tabloid newspapers, *The Guardian* described the ease with which patients had adapted to the new charge and the lack of confusion within hospitals; 'the figures' 'suggest that finding a shilling is not a major difficulty to most patients'.[30] This may not have been the case for all of Britain, as the newspaper only looked at the experience of patients in three large London hospitals.

The Times

The Times was first published in 1785 and is traditionally a supporter of the Conservative Party.[31] In contrast to *The Daily Mirror*, which had a large front page article, *The Times* had a small piece on page six detailing the government's plan to implement 'new charges for health service', on January 30th 1952.[32] This was followed by an article simply titled 'The Health Charges' on 6th February 1952, which specifically selected key features surrounding the bill. The article informed the reader of the rising cost of the NHS, the poor financial situation of Britain and the fact that if 'cuts' were not 'applied to the health service, they must fall more heavily on education, housing or food subsidies'.[33] By analysing the articles in *The Times*, one can identify parallels with *The Guardian*, as they both supported the Conservative government's prescription charge. *The Times* blamed the Labour Party for creating the financial situation, which required the Conservatives 'to take one step back' to rectify it. An article printed on the eve of the introduction of the prescription charge, tried to justify the charge further and disregards the 'Socialist fury' as 'synthetic'.[34] The article highlighted the fact that the Labour government 'pioneered this field' in charging for the NHS and that the case for such charges was more 'overwhelming' in 1952. The article also explained that the Conservative Party 'could court an easy popularity' by neglecting such charges but this would not help with the economic position of the country. *The Times* presented a very one-sided view on the prescription charge to its readers, verifying its right wing attitude. It also provides an example of a newspaper, not merely reporting the news, but attempting to reshape the opinions of its readers'.

Medical Response

It is clear that during the early 1950s, the major newspapers followed the introduction of the one shilling prescription charge. But how would the medical profession, who originally fought so fiercely to prevent the NHS, respond to such a charge? The *British Medical Journal (BMJ)* during this period provided information on the prescription charge from a number of standpoints, including the perspective of the BMA

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(from editorials) and the opinion of the General Practitioners (through letters of correspondence).

The *BMJ* was founded over 150 years ago and is one of the most influential medical journals in the world. During the post-war period, in which the NHS was created and the prescription charge introduced, the editor of the *BMJ* was Hugh Clegg. He has been described by many as 'colourful', extremely frank and the individual responsible for re-establishing the journal's great international reputation.[35]

Response by the British Medical Association

The BMA is a professional organisation established to represent the interest of doctors in Britain.[36] The BMA has disagreed with the government on numerous occasions during the 20th century; with the relationship between the BMA and Ministry of Health becoming 'noticeably soured'.[37] One of the first editorials published in the *BMJ* that examined the topic of NHS expenditure and the notion of charging for services, highlighted its misuse by members of the public:

> They can now get, apparently free of charge, those things that formerly they were prepared to buy for themselves.[38]

The article concluded with the statement that the BMA believed that the introduction of charges for medical care would produce a more efficient and less costly health service. It is important to note, that at this time, the BMA was looking for ways to tackle the financial issues affecting the NHS; including levying a hotel charge for patients admitted to hospital.[39]

Despite acknowledging these problems within the NHS, the BMA issued a statement informing doctors that they were opposing the prescription charge, in February 1952. The BMA explained that the charge would produce a financial barrier between doctors and their patients, as they would be 'required to' act as 'an agent to collect a government charge'.[40] The BMA's concern that doctors will become 'policemen of the State,' was not new. A similar worry arose with the introduction of the Notification of Infectious Disease Act of 1889; where doctors opposed the legislation on grounds that they felt this would ethically compromise their ability to treat patients.[41]

The editorial on March 1st 1952 identified that the BMA-led resistance ran deeper than just a concern for doctors' well-being. The piece depicted the BMA's frustration at not being consulted by the government prior to the proposal of a prescription charge. The BMA felt that they had a number of 'alternative suggestions to offer' to improve the efficiency of the NHS that were better suited to the needs of the government, the population and the medical profession.[42] The BMA-led resistance to the prescription charge was important in highlighting that the BMA still bore many grievances towards the government. The opposition to the prescription charge by the BMA appeared frivolous and superficial at times; the BMA seemed adamant at creating tension with the government and asserting its power. This resistance was not shared by all medical professionals at the time.

Letters from Doctors

Between January and July 1952, hundreds of letters from doctors were published in the correspondence section of the *BMJ*; identifying both the importance of the topic, as well as the conflict it brought. On one hand some doctors wrote letters expressing their support for the charge and their amazement with the BMA's objection to it. These doctors felt that patients were taking advantage of the NHS and that 'a fee like this is the one thing which may keep down the insatiable demand for the useless bottle of medicine'.[43] Some individuals went further and accused the BMA of not representing the 'mass of the profession'.[44]

The letters also provided details of a growing rift between London-based practitioners and rural doctors. In particular, 'dispensing' doctors were concerned by the notion of a prescription charge. These doctors, mainly found in rural areas, directly dispensed the medications required by their patients. A letter from Dr Cama (a rural dispensing general practitioner) to the *BMJ* in January 1952 agreed with the BMA and stressed that the charge would spoil 'the good relationship existing between a doctor and his patient'.[45] However, another rural general practitioner was angered by the BMA's motivation and launched a scathing attack at them for not rectifying the situation. Dr Thomas' letter described his resentment towards the BMA and their continual neglect for rural doctors; he continued by implying that the BMA had not done them justice.[46] This concept of unfairness and imbalance towards 'practitioners working in remote rural areas' was also highlighted following the BMA's negotiations to the creation of the NHS. Here, many felt that the benefits received by the BMA aided doctors with large practices (the group that dominated the BMA leadership) and not young, female or rural doctors.[47]

Despite large discussions amongst the medical profession on the topic of prescription charging, the effect upon patients was very rarely raised. Out of more than a hundred articles and letters of correspondence by doctors during 1952, only a handful take the patient into consideration. Dr Cargill raised this concern with his letter to the *BMJ*:

> Your correspondents have mentioned several of the points against the 1s. prescription charge. So far they have not mentioned the injustice to those who, having paid insurance for many years … had retired before 1948 with a right to medical benefits … it is our responsibility to give the patient what they need.[48]

This feeling of concern for vulnerable patients is also highlighted by an article in *The Daily Express* which points out the view of Dr Leak of Winsford, Cheshire. He criticised the charge as he believed that a 'mother might be deterred from sending a child to a doctor when she had a shilling to pay'.[49] The lack of regard for patients by the doctors identified that their protests were for their own personal gain. An agenda very far from their oath to keep the good of the patient as the highest priority.[50]

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Conclusion

In June 1952 the Conservative government introduced a one shilling prescription charge to help reduce the expenditure of the National Health Service (NHS). Previous historical accounts of the prescription charge focused on the political debate whereas this paper has pieced together evidence from newspapers and journals to look at the response from the media and medical profession. By exploring their reactions it can be seen that a spectrum of views existed following the introduction of the prescription charge.

In general, the newspapers even though different in their readership and political agenda, had a united response to the prescription charge. They all reported on the charge but did not question the government's proposal or try to hold them to account. This attitude differs greatly from the present-day media with regard to issues surrounding prescription charging; as shown by the massive campaigns by the English media following the abolition of the Welsh prescription charge in 2007. The introduction of the prescription charge in 1952 brought an end to the free (at point of delivery) NHS and little, if any, resistance was shown from the media. It appeared that the public had strong support and maintained faith with the government, during this fragile post-war period, and accepted the inevitability of charging in the NHS. They seemed to have acknowledged the benefits of the NHS; the idea of a small fee (equivalent to a loaf of bread) was still far better than the previous system of healthcare in Britain.

In contrast, robust discussions arose within medical circles with regard to the prescription charge. The charge highlighted the hostility between the British Medical Association (BMA) and the government; a pattern of confrontation which would remain throughout the 20th century.[51] The BMA's views were not shared by all doctors, which through the prescription charge, allowed the identification of rifts developing within the medical profession, with many doctors feeling that the BMA misrepresented their needs and concerns.

In conclusion, this paper aimed to further the understanding of the introduction of prescription charging in the NHS, by investigating the response from the media and medical profession. By exploring their reactions, this paper has identified that in 1952 a number of differing perspectives existed to the prescription charge.

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Bibliography

Primary Sources

A Bevan. A message to the medical profession from the Minister of health. *British Medical Journal* 1948; ii: 1.

W Beveridge. Social insurance and allied services. *Parliamentary Papers*, 1942-43; cmd 6404: 158-162.

http://www.bma.org.uk, accessed on 1 May 2009.

British Medical Journal (1951-1953), Electronic Database, PubMed Central.

http://www.measuringworth.com, accessed 5 May 2009

Ministry of Agriculture. Workers: wages and numbers. House of Commons, 12 December 1952; vol 509: cc108-9W.

The Daily Express (1949-1953), Electronic Database, British Library.

The Daily Mirror (1949-1953), Electronic Database, British Library.

The Guardian (1950-1953), Electronic Database, Guardian and Observer Digital Archive. [The newspaper's title was *The Manchester Guardian* until 1959.]

The Times (1949-1953), Electronic Database, British Library

http://www.wna.net, accessed on 3 May 2009.

Secondary Sources

P Bartrip. *Mirror of Medicine: A history of the BMJ*. Oxford: Oxford University Press, 1990.

J Belchem. *A new history of the Isle of Man*: Volume 5, Liverpool University Press, 2001.

G Godber. The origin and the first 25 years: a view from the centre. In G Macpherson (ed.) *Our NHS: A celebration of 50 years*. London: BMJ Books, 1998, chapter 2.

C Horrie. *Tabloid Nation: From the birth of the Mirror to the death of the tabloid newspaper.* London: Andre Deutsch, 2003.

G Mooney. Public health versus private practice: The contested development of compulsory infectious disease notification in late-nineteenth-century Britain. *Bulletin of the History of Medicine* 1999; 73: 238-67.

L Owen. Politics and the NHS. In G Macpherson (ed.) *Our NHS: A celebration of 50 years.* London: BMJ Books, 1998, chapter 4.

G Rivett. *From Cradle to Grave: Fifty years of the NHS* . London: King's Fund Publishing, 1997.

G Stewart. *The history of* The Times. London: Harper Collins, 2005.

L Walton. 1946-1996 and all that: 50 years of the NHS. In G Macpherson (ed.) *Our NHS: A celebration of 50 years.* London: BMJ Books, 1998, Chapter 1.

C Webster. The health services since the war: Volume I. *Problems of health care the national health service before 1957.* London: HMSO, 1988.

C Webster. Doctors, public service and profit: General practitioners and the National Health Service. *Transactions of the Royal Historical Society* 1990; 40: 197-216.

References

1. G Rivett. *From Cradle to Grave: Fifty years of the NHS.* London: King's Fund Publishing, 1997: 112.
2. C Webster. *The health services since the war: Problems of health care in the national health service before 1957*, Vol I. London: HMSO, 1988: 1.
3. Reference 2: 135.
4. A Bevan. A message to the medical profession from the Minister of health. *British Medical Journal* 1948 (3rd July); ii: 1.
5. Reference 2: 1.
6. P Bartrip. *Mirror of Medicine: A history of the BMJ.* Oxford University Press, 1990: 255.

https://doi.org/10.24355/dbbs.084-201803121401

7. Reference 2: 58.
8. L Owen. Politics and the NHS. In G Macpherson (ed). *Our NHS: A celebration of 50 years.* London: BMJ Books, 1998, Chapter 4.
9. G Godber. The origin and the first 25 years: a view from the centre. In G Macpherson (ed). *Our NHS: A celebration of 50 years.* London: BMJ Books, 1998, Chapter 2: 15.
10. L Walton. 1946-1996 and all that: 50 years of the NHS In G Macpherson (ed), *Our NHS: A celebration of 50 years.* London: BMJ Books, 1998, Chapter 1: 1.
11. W Beveridge. *Social insurance and allied services.* Parliamentary Papers, 1942-43; cmd 6404: 158-162.
12. Reference 2: 134.
13. Reference 2: 134.
14. Reference 2: 181.
15. Reference 2: 145.
16. Reference 2: 145.
17. Ministry of Agriculture. Workers: wages and numbers. House of Commons, 12 December 1952; vol 509: cc108-9W.
18. Our golden years: 1952 cost of living. *The Sunday Mirror* 3 February 2002.
19. http://www.measuringworth.com, accessed on 5 May 2009.
20. C Horrie. *Tabloid Nation: From the birth of the Mirror to the death of the tabloid newspaper.* London: Andre Deutsch, 2003.
21. So handy for home, they tell doctors. *The Daily Mirror* 30 November 1951: 7.
22. 'I have to turn down the plea', says Lord Woolton. *The Daily Mirror* 14 May 1952: 7.
23. The doctors' squiggle cost patients extra 1s. *The Daily Mirror* 9 June 1952: 3.
24. Reference 22: 7.
25. When a patient hasn't got a shilling. *The Daily Express.* 3 July 1952: 1.
26. History of the Guardian. http://www.guardian.co.uk/gnm-archive/2002/jun/06/1, accessed 7 May 2009.
27. Health Charges. *The Guardian* 31 January 1952: 6.
28. Reference 27: 6.
29. Moderator calls for revival of puritanism. *The Guardian* 27 March 1952: 3.
30. Shilling Prescriptions. *The Guardian* 12 July 1952: 6.
31. G Stewart. *The history of The Times.* London: Harper Collins Publisher, 2005.
32. New charge for health service. *The Times* 30 January 1952: 6
33. The health charges. *The Times* 6 February 1952: 5.
34. Health service charges. *The Times* 31 May 1952: 3.
35. Reference 6: 281.
36. http://www.bma.org.uk, accessed on 1 May 2009.
37. C Webster. Doctors, public service and profit: General practitioners and the National Health Service. *Transactions of the Royal Historical Society* 1990; 40: 203.
38. Editorial. Paying for the NHS. *British Medical Journal* 1951 (3rd March); i: 462.
39. Editorial. Health Service Estimates. *British Medical Journal* 1951 (7th April); I: 746.
40. Editorial Health service charges. *British Medical Journal* 1952 (16th February); I: 62.
41. G Mooney. Public health versus private practice: The contested development of compulsory infectious disease notification in late-nineteenth-century Britain. *Bulletin of the History of Medicine* 1999; 73: 252.
42. Editorial. The shillings on prescriptions. *British Medical Journal* 1952 (1st March); I: 72.
43. Health service charges. Correspondence. *British Medical Journal* 1952 (23rd February); i: 70.
44. F. Hunnard. Health service charges. Correspondence. *British Medical Journal* 1952 (23rd February); i: 70.
45. L Cama. Charge on Prescriptions. Correspondence. British Medical Journal 4753 (9th February 1952) pg 54
46. G Thomas, 'Dispensing Doctors', Correspondence, *British Medical Journal* 1952 (28th June); i: 344.
47. Reference 37: 209.
48. D Cargill. Health service charges. Correspondence. *British Medical Journal* 1952 (8th March); i: 91.
49. Patients open sealed notes. *The Daily Express* 1952 (5 July): 5.
50. http://www.wna.net, accessed on 3 May 2009
51. Reference 37: 216.

Affiliation of the BSHP to the New Pharmacy Leadership Body

The Clarke Inquiry[1] had suggested that the separation of the General Pharmaceutical Council from the Royal Pharmaceutical Society to form the new Pharmacy Leadership Body (PLB) would be an opportunity for the many disparate organisations which exist within pharmacy to coalesce under the one new central organisation. This would hopefully enable the PLB to speak more confidently on behalf of the whole profession of pharmacy. So far as the BSHP committee is concerned it has supported this position completely. The BSHP was formed from the Pharmaceutical Society's old History of Pharmacy Committee in 1967 'under the aegis' [shield] of the PSGB, and even after the separation of the two Societies we have had very close relations with the RPSGB, who for many years provided the secretariat and meeting venue for BSHP. It has always been our position that this we would wish to maintain.

To this end, the BSHP has had two meetings with Jeremy Holmes at the RPSGB in Lambeth to discuss the possible affiliation of the BSHP to the new PLB and we have agreed the principles on which we would be happy to affiliate. These would maintain our separate membership list, our separate finances and our charitable status. However, at this time the RPSGB cannot give any details on what this would mean for our finances. We accept that the PLB will have to be more commercial in the way it functions and that the services on which we have based our past relationship with the RPSGB will have to change. However, at the same time we have to be concerned over what this might cost.

At our AGM next March the membership will be asked to approve the affiliation of the BSHP to the PLB [which will probably continue to be known as the RPSGB] and we hope that by then we will be able to know how this will work in detail.

Roger Mills

1. For earlier discussions and correspondence with the Clarke Inquiry, see *Pharmaceutical Historian* 2008 (Dec); 38 (4): 49-54.

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The Future of the Museum and Library of RPSGB

The Royal Pharmaceutical Society has had a Library since 1841 and a Museum since 1842. Their roles have changed and evolved in different ways over the years but now both have undergone dramatic change in readiness for 2010 when the Society becomes the new Professional Leadership Body (PLB) for pharmacy.

Museum

The Museum will continue to be the only one in the world devoted to British pharmacy history. However as a result of a new staffing structure at the Society, the Museum's staffing has been reduced from 3 to 1.4 posts. The Assistant Keeper post was made redundant at the end of September, and the Keeper post was reduced to 2 days per week. The Documentation Assistant role remains full-time to ensure concentration on reducing the significant cataloguing backlog. The impact on the Museum's services will mainly be felt in the areas of education and outreach, compounded by the loss of the Audience Development Officer at the end of her Heritage Lottery Funded post at the beginning of September. The Museum's enquiry service will only be available on Wednesdays and Thursdays (to coincide with days that the Keeper is in the office). Emails, voicemails or letters received on other days will be responded to as soon as possible. The Museum's displays are still available Monday to Friday, 9am to 5pm, and the online resources on the Museum's web pages (www.rpsgb.org/museum) will continue to be added to. Both tours and research visits are still available by appointment.

The Society's Council re-confirmed their support for the proposal to transfer the Museum to a charitable trust at their meeting on 7 October. However, they agreed "to leave any decision on the Museum's future to the governing body of the new professional body following the transfer of the Society's regulatory responsibilities." Work carried out this year by a project team managed by Briony Hudson, and working with external museum governance consultant, Adrian Babbidge, has identified 5 possible charitable models for the Museum to be considered for the future.

The Keeper has also taken over responsibility for the Society's Early Printed Library Collection (publications prior to 1860) and its Archive Collection, to fulfil the objective of bringing all historical material under the auspices of the Museum.

Library

With the Library, the staffing has been reduced down to just one new Information Access and Resource Manager who will manage services based on its electronic and print resources. However an increase in demand for electronic access to contemporary information has meant a corresponding reduction in the acquisition of new print resources.

The Library service will continue to be a source of current information for pharmacists largely based around electronic resources. The aim of this is to help them practise their profession on a daily basis wherever they may be located. It will also provide support for a new Information and Advisory Service being set up for members of the PLB and which will handle all incoming enquiries for current information. Another important change of approach for the future will be directing some enquirers to alternative sources of both printed and electronic material.

The existing electronic resources available under *my*Library (www.rpsgb.org/informationresources/library/theelectroniclibrary.html) will be developed over time and the library catalogue (http://olib.rpsgb.org/) is being retained as a reference tool for print, electronic and web-based resources.

Two of the services traditionally provided by the Library were the postal loan of books and the document supply service for copies by post or e-mail. They were deemed unsustainable in the new body and will stop being provided at the end of 2009. A reference service will still be available for members and others to visit and access the range of core texts and key documents maintained on site. Also available to visitors within the Information Centre are workstations for accessing electronic resources, the internet and e-mail, plus facilities for photocopying and word processing, and a reading/study space for consulting any older or archival material by prior appointment.

The Library's collection of books and journals will have to be rationalised to keep only a core collection of popular titles and seminal works. The decisions regarding this will be taken by the new body's governing Assembly in consultation with its members. The fundamental criteria being applied now to the future of both services is one of financial viability in the very different circumstances facing the Society when all its regulatory roles are transferred to the new General Pharmaceutical Council in 2010.

Briony Hudson and Roy Allcorn

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The Library and Museum

The following information on plans for the future of the Library and Museum was handed out at the last Stakeholder Event at RPSGB under the title of 'Myth Busters'.

'The library is being closed'

Our library service is changing but *not* being closed. We believe these changes are helping to make the service more accessible to more members.

The library is primarily a source of current information for pharmacists to assist them in practising their profession on a daily basis wherever they may be located. Hence our desire to make more contemporary information available to them electronically.

The current acquisition and disposal policy of the library has led to just about every relevant text being acquired when published and retained. As a result some 35.000 items are currently retained. Analysis of the usage of the library revealed that less than 1 % of our members used the library lending service and about 1% made a visit there (although obviously these groups may overlap). In effect. the other 99% of the membership subsidise a facility which they do not use. despite considerable promotion on the part of the library team.

We have decided therefore that the key seminal post 1990 texts will be identified and retained for reference purposes. The rare books collection will be transferred to the custodianship of the museum.

Two of the services traditionally provided by the library were the postal loan of books and the document copying service. Both of these are very costly services which will not be sustainable in a new professional body which is looking to provide the most relevant and user-friendly services to its members. A service will still be available for members to access the core seminal texts that will be maintained on the premises for the benefit of members visiting the Society and for the staff of the Information and Advisory service who will require access to expert texts on which quality advice to members will be based.

An area of space in the lower library area has been set aside and fitted out to provide library and information services for on site reference to the texts to be retained. It also provides workstations for access to online materials and training in researching electronic resources for members.

'The museum is being closed'

The Museum is *not* being closed. It will continue to be the only museum in the world devoted to British pharmacy history. Whilst there has been a reorganisation of staffing. we expect this to only have an impact on some of our educational work and schools initiatives. Our historical enquiry service will continue to answer questions from members and non-members from around the world. The museum will answer enquiries including the identification of pharmacy antiques. the career history of pharmacists and their premises. the history of medicines and treatments as well as questions about the Society itself. We have around 45,000 objects and these are still safeguarded as the resource upon which all of the Museum's activities are based. There will continue to be displays at 1 Lambeth High Street. as well as temporary displays when appropriate.

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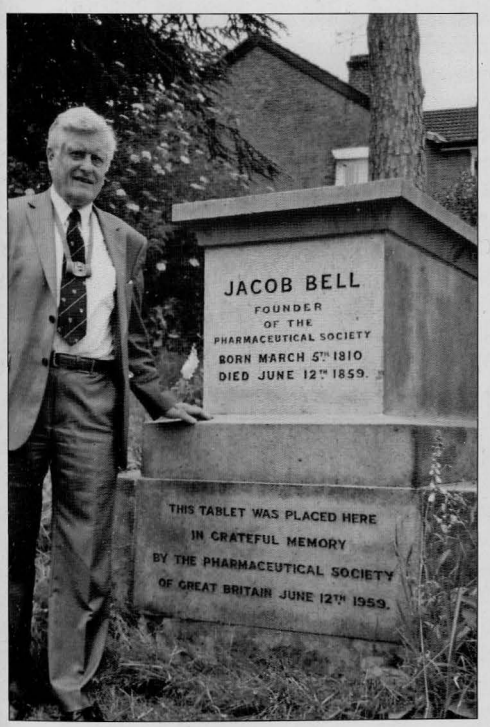
The Sesquicentennial Commemoration of Jacob Bell (1810-1859)

Friday 12th June 2009 was a special and memorable day for pharmacy and the group of people who had gathered in Tunbridge Wells to celebrate the sesquicentenary of the death of Jacob Bell and to enjoy delightfully fine weather.

Heartfelt thanks are due to the great commitment and industry of the Friends of Woodbury Park Cemetery (FWPC) who have impressively restored a seriously neglected and overgrown cemetery in Tunbridge Wells. Our thanks too, to Briony Hudson (RPSGB Museum) who established a productive rapport with the FWPC secretary, Mrs June Bridgeman and chairman Miss Angela Phillips. Briony's cooperation with June Bridgeman resulted in a thirty-page booklet *Jacob Bell 1810-59: A useful an honourable life*. The excellent booklet was available on the day (see opposite and back cover).

The day's programme started with a visit to AE Hobbs' long-established pharmacy in Mount Pleasant. The pharmacy had long had established links with Bell's pharmacy in London. A large plaque in the window recorded Jacob Bell's connection with Tunbridge Wells and the party was greeted by the present pharmacist owner Mr Ming Majoe and music from a trio of violinists led by the pharmacist's daughter! President of the Royal Pharmaceutical Society, Steve Churton, was invited to cut a traditional ribbon across the entrance, following the pharmacy's recent renovation, and say a few words of welcome.



Dr Michael Jepson at Jacob Bell's memorial at Tunbridge Wells

The group of about thirty then walked to the Tunbridge Wells Museum and Art Gallery, where we were welcomed by Dr Ian Beavis, director, and shown around the most relevant exhibits. The group walked to Trinity Theatre and Arts Centre, in the former Holy Trinity Church, where Jacob Bell, a lapsed Quaker, was baptised by Canon Edward Hoare on the 7th June 1859, five days before his death. It transpired that Jacob had known Edward since boyhood and when they had been best friends. Dr Philip WhItborn gave a fascinating insight into the historical background of the church, describing it as the town's mother church, and much regretted its deconsecration. A leaflet welcoming the group on this special commemorative occasion was distributed to all present.

A short walk took the group to Summerhill House on the London Road, where Jacob Bell died. The house is one of several particularly large houses which, in the time when Tunbridge Wells flourished as a spa and health resort, consisted of generous apartments for the affluent to come to reside for 'the season'. The Friends then most helpfully provided their cars to transport the group to Woodbury Park Cemetery. Here the group was joined by the Mayor of Tunbridge Wells, Leonard Price and his wife Victoria, together with some descendents of Canon Hoare and Timothy Hickmott.

So who was Timothy Hickmott? It goes back to 1859 when Jacob Bell, suffering in the final stages of tuberculosis, visited the cemetery to choose a suitable site for his grave and met Timothy Hickmott who was both parish clerk and undertaker. Jacob selected a pleasant site and is said to have thumped the ground with his stick saying: "capital, just the place, here I shall be, I shall be put in here and that will be the end of me". The fifth and sixth generation Hickmotts still serve as undertakers. Timothy's restored gravestone and that of Canon Hoare were seen en route to the impressive grave and memorial of Jacob Bell. Here a planting ceremony took place involving the Mayor of Tunbridge Wells, the President of the Royal Pharmaceutical Society and outgoing President of BSHP Michael Jepson. The vice-chairman of the Friends, David Bushell, invited Michael Jepson to unveil the mounted small plaque on the monument donated by BSHP and which read 'a useful and honourable life', before planting campanulas. These are intended to commemorate Bell's name, as it was thought by the organisers that given Bell's 'reputation as a bit of a joker', he would appreciate this little play on his name.

Everyone was then invited to a splendid buffet lunch at the FWPC secretary's home, which concluded the day's most memorable programme with the opportunity to informally thank the Friends and especially the secretary June Bridgeman.

Dr Michael Jepson

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39th International Congress for the History of Pharmacy

Vienna, Austria 16-19th September 2009

Once again BSHP was well represented by UK and overseas members at the 39th International Congress for the History of Pharmacy, which was held from the 16th to the 19th of September 2009 in the University of Vienna.

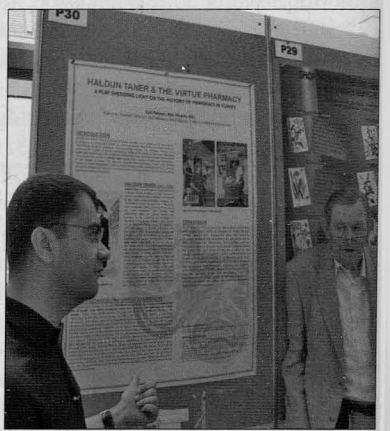
The opening ceremony was held in the magnificent Great Hall of the University, sitting in its Baroque splendour on Dr Karl-Lueger-Ring. Music by Mozart and Haydn was followed by the welcome address by Professor Olivier Lafont, President of the International Society for the History of Pharmacy. The opening lecture, delivered by Professor Dr Dilg of the Institute for the History of Pharmacy at the University of Marburg, was entitled 'The Apothecary and the Remedy -- a critical retrospective'. One interesting point that he made was when he referred to the suspicion of the medical profession that the apothecary was actually supplying the prescriptions he had ordered. The opening was followed by a reception in the gardens and arcades of the university.

Another notable lecture was given the following evening by Assistant Professor Dr Christa Kletter of the University of Vienna, at the Ceremonial Meeting of the International Academy for the History of Pharmacy entitled 'Austrian Pharmacy in the 18th and 19th Century'. The similarity and even the timing of the development of the profession and the growth of pharmacy legislation in Austria to our experience in the United Kingdom are striking.

In addition to the Plenary Lectures at the Conference there were 84 short papers presented covering a wide variety of pharmacy history subjects across the width and breadth of Europe. While there was something to interest everyone, it was a matter of trying to get to the lecture in time, which with three lectures running in parallel required some careful planning. A new innovation was to devote a period to walk round the posters which were on display. These reached a high standard this year and the winner of the poster competition was Melanie Köppe and Professor Christoph Friedrich of the University of Marburg with a poster on the history of the German manufacturer 'Ankwerk Rudolstat'. BSHP member Halil Tekiner was a creditable second.

Professor Wolf-Dieter Müller-Jahnke, president of the International Academy handed over the new president's badge of office to Dr Stuart Anderson.

Our Past President Dr Stuart Anderson was honoured by being elected President of the International *Academy* for the History of Pharmacy. Professor Wolf-Dieter Müller-Jahnke, the retiring President, presented a new President's badge in 18ct gold which Dr. Anderson will be the first President to wear. This is some evidence of the impact that BSHP members are making on the international scene.



Halil Tekiner explaining his poster.

There were a number of opportunities to see historical collections and libraries associated with medicine and pharmacy. A tour of the historic pharmacies of the city revealed that there are still many hospital and retail pharmacies operating in the decorated surrounds of the 18th century, with original containers on the shelves; surely a unique situation in any city.

Friday evening was devoted to a social get-together at a wine bar or 'Heurigen' on the outskirts of Vienna. The wine flowed freely accompanied by ample supplies of Austrian food. It is a mark of the stamina of delegates, that there was still a good turnout at the closing sessions on Saturday morning. The final act of the conference was a tour along the Danube to the Wachu valley and Monastery at Melk.

Our next International Congress will be held from the 14th-17th September 2011 in Berlin. The theme of the congress is 'Pharmacy and Books' which gives wide ranging opportunities for interesting research. It will be held at the Berlin-Brandenburg Academy of Sciences and Humanites, Gendarmenmarkt, Berlin. Considered one of the most beautiful and elegant squares in Berlin, Gendarmenmarkt, which was restored after the destruction of the war, is dominated by the Deutscher Dom, the Koncerthaus and the Französischer Dom, where the meeting of the International Academy will be held. Make a resolution now to come to Berlin and support the BSHP as well as our President of the International Academy. Preliminary details are now available at *www.40ichp.org*

Dr Peter Worling

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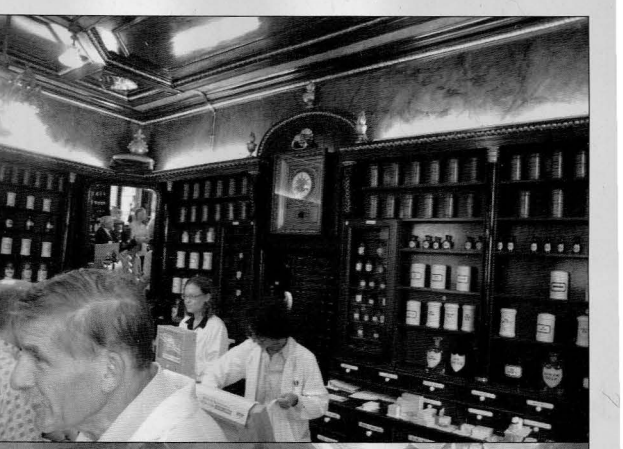
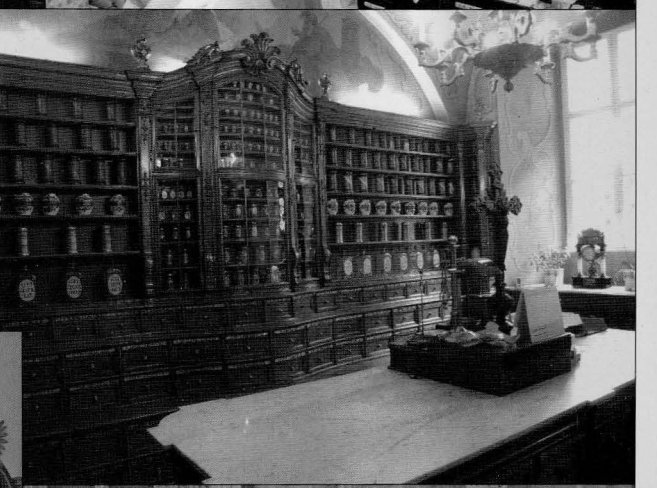


39th International Congress for the History of Pharmacy, Vienna, September 2009.
Clockwise, from above: International Academy meeting in the Great Hall of the University of Vienna; the Apotheke zum Goldenen Reichsapfel; Pharmacy in St Elisabeth Hospital; walking tour of old Viennese pharmacies; guided tour of Melk Abbey by the Danube; old ceiling of Barmherzigen Brothers pharmacy; Apotheke zum Romischer Kaiser, Vienna.



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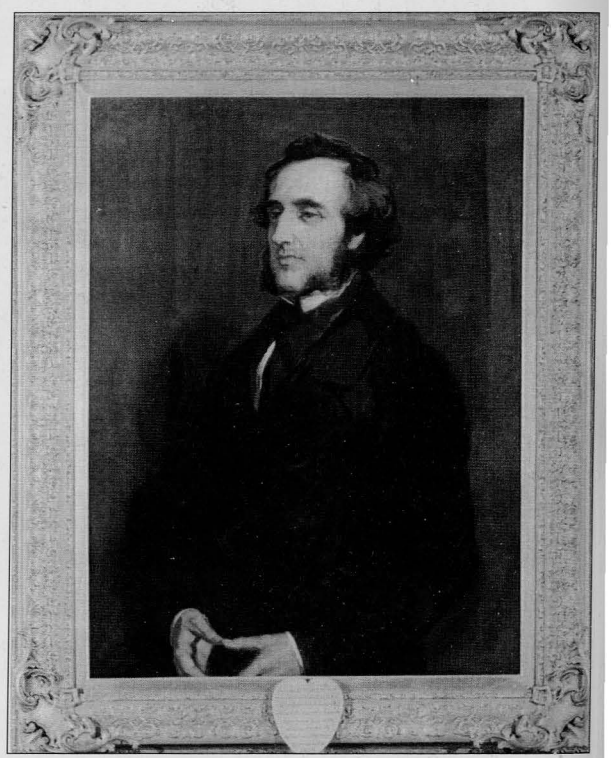
Major General Alan Hawley, who spoke on 'Disaster Medicine' at the 23 September meeting.

Museum Publication

The Museum of the Royal Pharmaceutical Society has launched an online research guide: ***Discovering pharmacy history***. The fully illustrated guide provides details about a range of resources, suggestions of research questions and how to investigate them, ideas for research projects, and links to further information. It's a perfect place to start if you're new to researching British pharmacy history, or if you're an experienced researcher who needs some suggestions of further resources or subject areas. Find it at www.rpsgb.org.uk/informationresources/musem/resources/discovering_pharmacy_history/index



The label reads 'Portrait of my late excellent friend Jacob Bell, painted by E.Landseer, R.A at one painful sitting a few days before his death. Given to his very worthy successor T.H.Hills by the author, E. Landseer R.A. 1859.'
Royal Pharmaceutical Society

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